AMERICAN FORESTS

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COMING

Aldo Leopold returns to the pages of AMERICAN FORESTS in June with one of the finest articles he has written — a thought-provoking portrayal of the nation's land use opportunities, with particular reference to our great farming regions.

Two other familiar names will appear in this issue—Harry Botsford, who likes his fishing, with "Little Lost Lakes," something that will intrigue your interest, and Clyde M. Brundy, whose "Cabin Fever" should not be missed.

There will also be "Leaf Lore with Carbons" by George C. Mason; "Treasures of the Sierra" by Ethel Severson; "Providing Credit for Forest Restoration" by A. H. Mussman and C. H. Hammar; and "Rivers of Oblivion" by Cleland van Dresser.

But while you are looking ahead to the June issue, look back also to the April issue—the Forest Fire Prevention Number of AMERICAN FORESTS. This special issue, because of its great educational value, should have wide distribution. You can help by sending extra copies to schools, libraries, individuals. They are available, and at the regular price of 35c a copy.

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Member A. B. C.

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READERS' FORUM

OUR WILDERNESS ASSETS

SIR: I want to congratulate you on your editorial in the March issue of AMERICAN FORESTS on the matter of resurveying the whole question of the administration of our wilderness assets. I think that most Americans are getting disgusted with the inter-bureau warfare of the United States Forest Service and the National Park Service. We deplore on one hand the "free use of resources" policy of the Forest Service and on the other the commercialization of scenic assets by the Park Service through concessionaires with high-powered advertising campaigns. There certainly should be some common ground on which to stand and as you suggest, a thorough nonpartisan investigation of the whole matter would be most welcome to real lovers of the wilderness. The publicity coming from it would have a salutary educational influence. All power to you in promoting the idea.—*C. E. Graves*, Arcata, California.

ROADS AND THE NATIONAL PARKS

SIR: It was gratifying to me to read in the February number of AMERICAN FORESTS the article entitled *Ickes Urges Park Wilderness Policy*. There is a steadily increasing number of our citizens who will welcome the policy to maintain the new Olympic National Park, Isle Royale National Park, and sections of other parks as primitive wilderness areas. However, there is a loophole in Mr. Ickes' statement of policy to the effect that "roads should be limited to the absolute mini mum, and elaborate hotels should be excluded." I agree with him wholeheartedly, but how will the term "minimum" be interpreted and just what is an elaborate hotel?

If an area is to remain primitive, I see no method of keeping it that way other than to completely exclude roads and hotels. None of these areas is so large that roads built to (not into) it or hotels built outside its boundaries would not adequately suffice. The present policy of the Park Service is to keep roads to a minimum, but look what has happened. The Yosemite Valley is so completely filled with habitations and other marks of civilization that many persons are reluctant to visit it. There are many other examples which could be cited. In many of the parks, roads on which speed is supposedly restricted to thirty-five miles per hour, have been so widened and made free from curves that it is almost impossible to keep motorists from traveling sixty miles per hour. At the same time these high speed roads are hideous eyesores marring the beauty of the landscape. It almost appears as though some parks will become more famous for their magnificent highways than for the features for which they were established.

If such things, contrary to the stated policy of the National Park Service, happen at present, what is to prevent their occurring in the future within our wilderness areas? The only solution is to keep the roads and hotels outside the boundaries by stringent regulations which should be rigidly enforced.—*J. L. Dyson*, Geology Department, Colgate University, Hamilton, New York.

"GINGKO" OR "GINKGO"?

SIR: In a recent issue you say that the Japanese spelling for the ginkgo tree is "gingko."

During my ten years in Japan I have often asked Japanese people if they knew what a "gingko" tree was. None knew. Whenever I pointed out a gingko tree to a Japanese and asked the name of it the answer was always "icho" (an accent on the last syllable). In books on trees the name is also always given as "icho."

"Icho" is very close to the old Chinese (Sung Dynasty) pronunciation of the characters for this tree. Etymologically the characters mean "web of a wild duck," which is not a bad description of the leaf.

In one of your recent issues a reader says that he has a gingko tree and that each year he has to dispose of its worthless fruit. He has actually been discarding what the Japanese consider a delicacy. Ginkgo nuts here are boiled and then added to Japanese soup. These nuts are called "ginnan," and the characters making up this word mean "silver apricot."

The ginkgo tree came to Japan from China. According to authorities the oldest tree ever found in Japan is about 600 or 700 years old. It is believed that during the feudal age, about the Kamakura period, when Buddhist priests from China and Japan visited back and forth, seeds were brought from China and planted in Japan.

The Japanese whom I have consulted are not able to give the origin of the word "ginkgo" or "gingko." They believe there must be some connection between "gingko" and "ginnan" (the fruit), because the Chinese characters for the latter can also be pronounced "ginkyo," although the Japanese never use this pronunciation.—*J. H. Lange*, Yokohama, Japan.

FOR CCC MILITARY TRAINING

SIR: Have just read your February issue of AMERICAN FORESTS and find therein a letter from Donald De Leon, Fort Collins, Colorado, in which he says that he had read something in the January AMERICAN FORESTS regarding some military training of CCC boys that made his hair stand up. This writer has now rounded out four years in and for the CCC. I have many times had conversations with CCC boys regarding this very thing and, so far, I have not met one who has really objected to it. Sometime ago one said to me: "If a war breaks out we will be the first to be drafted and it would be well for us to have some knowledge of how to defend ourselves; then, too, our government has done so much for us, why should we not be willing to show appreciation and train some for possible coming events?"

I believe anyone who objects to training our youth for defending the land in which we live and, I hope, that most of us love, is not a very good citizen. We do have other organizations which are training for what we do not know—so why not train our boys? They will, as all the rest of us, be benefited by it some day. Army officers have told me that in the last war many of our boys perished for lack of training. I hope we may never have another war, but if it comes, I do hope that we may be prepared for it.—*Howard Hay*, Weott, California.

LOWER DIVISION FOREST SCHOOL

SIR: Beginning with the 1939-1940 session, Mississippi State College will open a Lower Division Forest School. Students may take the first two years' work at State College, then transfer to any of the forest schools in the country.

President G. D. Humphrey and Dean E. B. Colmer, of the School of Agriculture, decided to install this forestry curriculum so that Mississippi students desiring professional training in forestry would be able to complete part of it at their own institution.

The college is situated within a few miles of a 90,000-acre forest, part of which is controlled by the Biological Survey, chiefly as a game refuge, and part by the college. Also available for instruction and research are several small woodlands on the college farm and a forest tree seedling nursery. There are several pine and hardwood sawmills, a veneer plant, and a cooperage plant within twenty-five miles of the campus. —*E. G. Roberts*, Associate Professor of Forestry, State College, Mississippi.

"FORESTING" FOR PROFIT

SIR: I have just received from the Forest Service some letter inserts entitled "Timber Farming For Profit." Timber "farming" appears to me to be a very unhappy selection of words for the promotion of forestry. If we "farm" and in so doing are "farming," why can we not also "forest" and in so doing be "foresting?" In other words, why do we have to borrow an agricultural term to apply to our forestry work, if by the simple expedient of using the words "forest" and "foresting" we can drop this "farming" complex? I believe that forestry will be strengthened rather than weakened by so doing. In other words, the title "Foresting For Profit" should be quite as understandable as "Timber Farming For Profit" and it would be much more accurate according to my way of thinking. Can't you start a discussion of this possibility in AMERICAN FORESTS and help us get really into woods atmosphere with our descriptions of what we are doing?—*J. O. Hazard*, Nashville, Tennessee.

A good "break" for the timber!

• *Plowing and maintaining fire-lines at the University of Florida Division of Forestry . . . with a Rome plow and a "Caterpillar" Diesel D4 Tractor. This machine works 8 hours a day, and uses less than one gallon of low-cost fuel an hour!*

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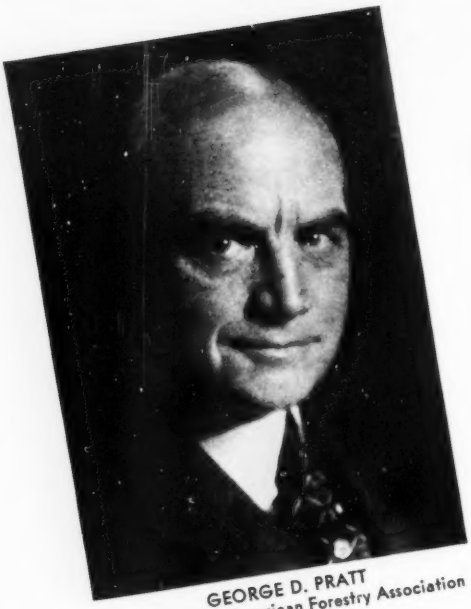

GEORGE D. PRATT
President, The American Forestry Association
1924-1934

■ George DuPont Pratt, of New York, 16th President of the Association, followed Henry S. Graves in office. Elected March 1, 1924, Mr. Pratt served for ten years, when ill health forced his voluntary retirement. He brought to the office of president a long and broad interest in the protection of natural resources. In fact, conservation and the name of George D. Pratt are almost synonomous terms, for he devoted the whole of his mature life to its general advancement.

Always a lover of the out-of-doors, Mr. Pratt's ardent interest in conservation led him eagerly to devote a great deal of his time and personal fortune to activities in these fields. Certainly The American Forestry Association never had a president more faithful or inspiring in his leadership. During the long time he served he never missed a meeting of the Board of Directors or an annual meeting. He worked indefatigably to strengthen the financial standing of the Association and was instrumental in starting and making possible its endowment fund. He was tireless in advancing its educational work and broadening the field of its endeavor.

Prior to becoming president of the Association, Mr. Pratt was for six years Conservation Commissioner of the State of New York, and during that time was instrumental in shaping much wise legislation in the interest of conservation.

Until his death he was treasurer of the Boy Scouts of America, since its inception in 1910. His diversity of interests is shown by other organizations in which he was active. These included the Metropolitan Museum of Art, the Camp Fire Club, the American Bison Society, the National Association of Audubon Societies, the New York Zoological Society, the Wild Life Protective Fund, the Adirondack Mountain Club and the American Museum of Natural History.

From the resolution passed by the Board, in regretfully accepting Mr. Pratt's resignation as President, we quote: "Mr. Pratt has given so generously of his time, thought and energies, as well as of his personal fortune, in promoting public interest and support for the perpetuation of American forests, the preservation of natural beauty throughout the land, the protection of wildlife, and the recognition of scientific principles in the conservation of natural resources, as to place him for all time among the outstanding leaders in American conservation."

Born on August 16, 1869, the career of George DuPont Pratt was one of service to his fellowmen, and to those movements which he felt would contribute to a higher and cleaner standard of American life. He was widely known and loved as a friend and benefactor. Mr. Pratt died at his country home, Killenworth, at Glen Cove, Long Island, New York, on January 20, 1935.

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WITH THE coming of spring what smallness the works of men take on against the background of nature rising from its winter sleep and shaking out its folded flags of beauty. Man builds here a towering skyscraper, there a giant bridge; yonder he scalps a wooded hillside to lay ribbons of concrete and crowd house upon house. Noisily he works and loudly boasts. A few short years and his scattered monuments wrested from toiling strife are outmoded by the vagaries of his own uncharted mind.

But Nature waking from her winter sleep proceeds with quiet harmony on her charted course. A mighty force stirs within the earth, the tint of awakened life spreads over field and hill to every horizon and then in measured pace with sun and wind and the eternal cycle of the seasons, Nature unfurls to glorious fullness her infinite symbols of creation at work. Without noise, strife, selfishness, all is growth with beauty—beauty of unfathomable meaning. And from the mother earth beneath, there rises the invisible presence of a power that neither the hand nor mind of man can stay or turn from its course.

This springtime miracle of nature is a seasonal sanctuary where all who lay claim to conservation purpose may well pause for reflection. For it is with this mysterious power of life and growth, harvest and beauty, they would deal. Conservation that loses its sense of beauty or ignores beauty's service to humanity loses its bond with nature and thereby loses itself. Of beauty in nature, there is no finer, more searching appreciation than that of Dr. O. M. Trevelyan, from which the following extracts merit reading every year when the bloodroots signal the coming of spring:

"As the centuries pass the mystery of the Universe deepens. The thoughts of civilized man accumulate like snow flakes on the summit of Everest, or the leaves of many years in winter woods, burying one past system after another, one fashion after another in religion, science, poetry and art. Knowing that so much lies buried beneath, which but now was so hot and certain, it becomes ever more difficult to trust so implicitly as of old whatever still for the moment lies on the surface of human thought, the still surviving dogma, or the latest fashion in opinion. At least it becomes difficult to trust either to dogma or to thought alone. Man looks round for some other encouragement, some other source of spiritual emotion that will not be either a dogma or a fashion, something

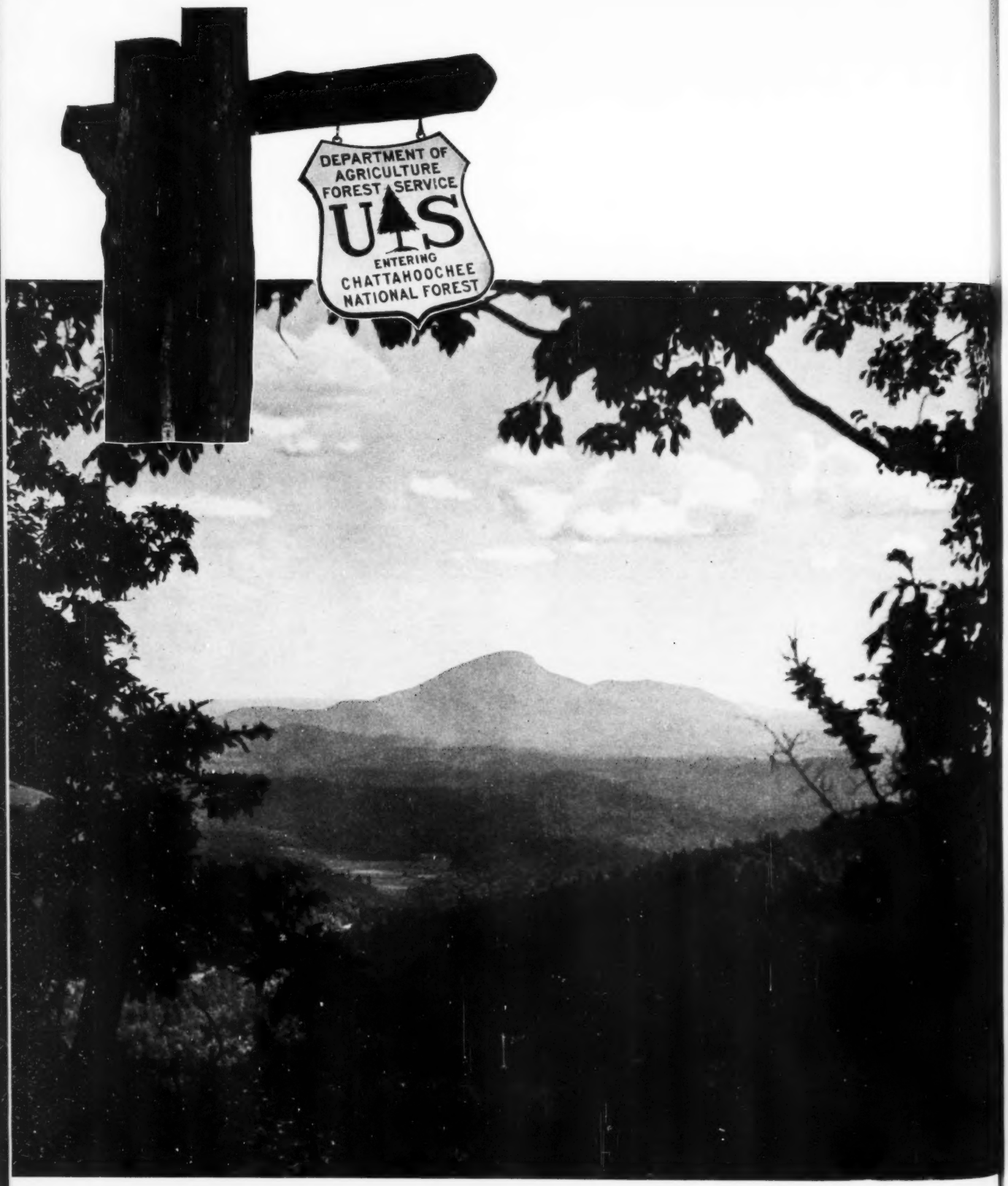
'That will be for ever
That was from of old.'

"And then he sees the sunset, or the mountains, the flowing river, the grass and trees and birds on its banks. In the reality of these he cannot fail to believe, and in these he finds, at moments, the comfort that his heart seeks. By the side of religion, by the side of science, by the side of poetry and art, stands Natural Beauty, not as a rival to these, but as the common inspirer and nourisher of them all, and with a secret of her own beside. * * *

"This flag of beauty, hung out by the mysterious Universe, to claim the worship of the heart of man, what is it, and what does its signal mean to us? There is no clear interpretation. But that does not lessen its value. Like the Universe, like life, natural beauty also is a mystery. But whatever it may be, whether casual in its origin as some hold who love it well, or whether as others hold, such splendor can be nothing less than the purposeful message of God—whatever its interpretation may be, natural beauty is the ultimate spiritual appeal of the Universe, of nature, or of the God of nature, to their nursling man. It and it alone makes a common appeal to the sectaries of all our religious and scientific creeds, to the lovers of all our different schools of poetry and art, ancient and modern, and to many more beside these. It is the highest common denominator in the spiritual life of today."

 Owa Rustin

Editor.



A fair vacation land beckons — the land that was the last stronghold of the Cherokee Indians in the Southern mountains, — lovely Nacoochee Valley in the foreground, with Yonah Mountain rising majestically against a summer sky

Kenneth Rogers

THE LURE OF THE CHATTAHOOCHE

A National Forest in Northern Georgia Where History and Legend Mingle and a Vast Vacation Land Awaits the Visitor

By CHARLES N. ELLIOTT

RANGER WOODY'S automobile spluttered and jerked to a stop. Beyond the steaming radiator cap the road climbed on and on, past massive boulders and fern-filled glens, under stupendous tulip trees, through glades of Lady Slipper Orchids — a rutted, two-wheel trail. For three hours we had followed that excuse for a road. Through splashing creeks we had come, across clearings where gnarled apple trees occasionally marked an old home site. And always we had climbed — up and up and up — toward the heart of a wild, virgin land. At every stream the wheezing machine had clattered to a standstill and demanded a drink, its just reward for a noble performance of duty.

Arthur Woody extracted his bulky frame from under the wheel and dug into his duffle for a bucket.

"This is the last stop," he said. "In twenty minutes we cross the divide. Refuge headquarters are a mile or two down the other side. From now on," Arthur called, "keep your eyes open for big game. During the past few years, we have released several bear and over two hundred deer on the refuge. They've spread all over the country."

The old automobile groaned and started under protest. The road grew steeper and rougher, the forest canopy thinner. Soon the narrow mountain trail broke out upon a broad highway. Arthur did not miss my look of astonishment. "I wanted you to see the road we traveled five years ago," he said; "we'll go back the new road."

The graded highway swung in a graceful curve and slid downward through tall forest trees. We passed a wire enclosure.

"An old deer pen," the ranger explained. "At first we confined deer before they were released. A couple of months ago we clipped the wings of several turkeys and turned them into this pen. A small chicken hawk, half the size of the runt gobbler, killed and ate every one before the month was out."

We moved onward with the road, gently downward in spite of the perpendicular mass of granite and earth around us. Rock Creek followed the road, pouring from ledge to ledge, swirling into huge pools, growing larger as other streams joined it from the north and south. Along the roadside were many places where deer had skidded down the steep cuts to cross the road. We stopped and examined two small artificial lakes where trout had been planted. In a few years they would be large enough to take on the quick end of a bamboo rod.

We swung left abruptly, and stopped. A neat, white bungalow sat under the trees, modern in every detail, with inside paneled walls, a white tile bathroom and electric lights.

"The Bureau of Fisheries keeps a man here," Arthur explained, "to hatch and rear all the trout we plant. Our native brook trout eggs are shipped from New

A woodland sprite — in a few short years deer have been brought back into ten thousand square miles of mountain land in northern Georgia

Hampshire at present, but we plan next year to have our own brood fish and raise trout we know are native to these waters. Natural conditions are always best."

We walked over the place. There were sixteen circular concrete rearing pools, with trout from an inch long to the size that made my fingers itch for a smoking skillet—rainbow and native brook trout from the mountain streams of the Chattahoochee. There was a modern laboratory with electric refrigerators and all necessary equipment. And there were plans for more concrete tanks for production of a quarter of a million trout each year.

"Are all streams on the Chattahoochee cold enough for trout?" I asked.

Georgia and the United States Forest Service to set aside four preserves, comprising a total of some 153,000 acres, designated as Game and Fish Management Areas. With wildcats, foxes and other predatory animals being trapped, the game was increasing rapidly.

"When the management areas have become sufficiently well stocked," the ranger said, "then they will be opened to hunting and fishing, under regulated supervision, for such periods as specified by the Forest Service."

The sky was blue-black and a few scattered clouds had swung low enough to cap the higher peaks of the Blue Ridge when we turned into the yard of the Suches Ranger Station. The little community had grown surprisingly

Lovely Lake Rabun, set like a gem in the Chattahoochee National Forest. The waters of the Chattahoochee flow into four great water systems

"We have some fine bass water," the ranger said. "To stock our warmer valley streams, we will build a bass hatchery on Wildcat Creek, near the headwaters of Lake Burton."

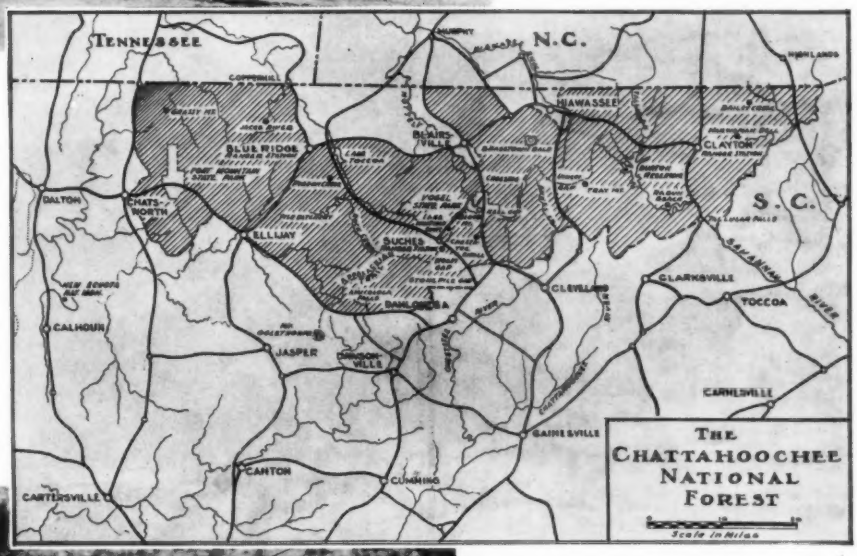
As we climbed the winding road, back toward Hightower Gap, Arthur told me more about this new game refuge in the heart of the Chattahoochee National Forest. New refuge? It had been ten years in existence — a 14,000-acre tract which in a few short years had accomplished the almost impossible feat of bringing deer back into ten thousand square miles of mountain land in northern Georgia. It had been the basis for a cooperative agreement made in March, 1936, between the state of

since the advent of the Civilian Conservation Corps. The ranger station, itself, had spread from a small, one-room shanty to several large buildings with office space, desks, clerks and garages. Arthur Woody's office was draped with skins and pictures and game heads. Each trophy was a mute but sufficient basis for a delightful story from the lips of the ranger. One antlered head which interested me particularly was a large buck, which had been ham-strung and brought down by two wildcats.

"I wouldn't have believed it," Arthur said, "but we found the deer soon after he had been killed. He fought with the cats for half a mile and tracks were in the snow that even a Boy Scout could read."

Kenneth Rogers

The little community of Suches has grown surprisingly since the advent of the Civilian Conservation Corps—and so has the Ranger Station there, spreading from one room to several large buildings, as shown in the picture



Taking a speckled trout — a prize beauty — out of a cold Chattahoochee stream

Supper hour was one of the most delightful of the day. The ranger had warned me that I would have to take "pot luck," which turned out to be golden brown ham and gravy, several fried chickens, biscuits the size and color of an October moon, a variety of vegetables and coffee. Around a huge log fire that evening I learned much about this mountain land with its vanished race and its present people, much about its rich legendary lore and richer history.

Impressive, indeed, was the fact that the Appalachian Mountains, which form the backbone of the Chattahoochee National Forest, are said by geologists to form the oldest mountain range on the face of the earth. Over 250 millions of years old, it has worn down through countless centuries from its original height of some thirty thousand to less than seven thousand feet elevation at its highest point.

Impressive also was the fact that the waters of the Chattahoochee Forest flow into four great water

Kenneth Rogers

In the North Georgia mountains are descendants of the Moravians — a religious group which came over from Central Europe two hundred years ago. Mountain farms such as this bear evidence to their supremacy over the hardships they met

systems. Down the south and eastern slopes runs the Tallulah, through a chain of deep, walled-in power lakes, to the great Savannah, along the borderline of Georgia and South Carolina and into the Atlantic Ocean. Out of this vast forested area flow the Oostanaula and Etowah, a portion of the headwaters of the great Alabama River. The Chattahoochee River, for which the National Forest is named, heads between Tray and Black Mountains, joins the Flint at the Georgia-Florida-Alabama line and forms the Appalachicola, which flows through Florida and into the Gulf of Mexico. The Hiawassee, Nottely and Toccoa, flowing northward, mingle waters with the Tennessee, the Ohio and eventually with the Mississippi River. Thus, water flowing away from the Chattahoochee National Forest may touch any one of twelve states before it quenches the salty thirst of the oceans.

I learned that all this vast, unspoiled section of the earth's surface was the homeland of the Cherokees. The countryside abounded in Cherokee names. The word Chattahoochee signifies "red rock" or "flowered rock." Choestoe, a settlement on the Nottely, was corrupted from Tsistu (*Ts* in Cherokee is pronounced *ch*), which was the name of the mythical white rabbit, the mischief maker of the Cherokee council fires. Yonah was once Yanu, the Bear. Hiawassee was supposed to be from Ayuhwasi, the word for meadow. There was Coosa, Itawa, Toccoa and any number of other musical, beautiful names.

"Tomorrow," said Arthur, "I will show you a land that was the last stronghold of the Cherokee Indians in the southern mountains. Just north of here, for example, are two peaks, Blood and Slaughter, where a fierce battle raged between the Creek Indians and the Cherokees for domination in this part of the world. The story is told that the Cherokees drove their traditional enemies to the top of Slaughter mountain and killed them to the last fighting warrior. An old Cherokee chieftain told my father that after the battle, the streams on both sides of the mountain ran red with blood."

The last boundary line in the southern mountains to divide the lands of the white settlers from the hunting grounds of the red man had its turning point at the foot of Blood Mountain. In the Treaty of 1819, the Cherokee made what they termed their final cession of land, being induced to withdraw from the head of the Chattahoochee, westward beyond its westernmost headwater, the Chestatee. They made this cession in order to secure land in the far west for their brothers who had already emigrated beyond the Father of Waters. The treaty specified that the boundary should be run from Unicoi Gap to the nearest main head of the Chestatee. In running the line, the surveyors passed by the smaller but nearer headstream, Tesnatee Creek, and moved westward until Blood Mountain itself barred their further intrusion upon the land of the Cherokee. There at the head of Frogtown Creek, in what is today Vogel State Park, the surveyors connected the boundary with the head of the Chestatee, which word from the Cherokee *chesta-dee-nuh* meant the river that was "not to be sold."

The Cherokees contended that the surveyors should have stopped at the head of Tesnatee Creek and the boundary dispute was still unsettled when in 1823, the United States Commissioners asked for more land under a new treaty. When this was refused, the Commissioners

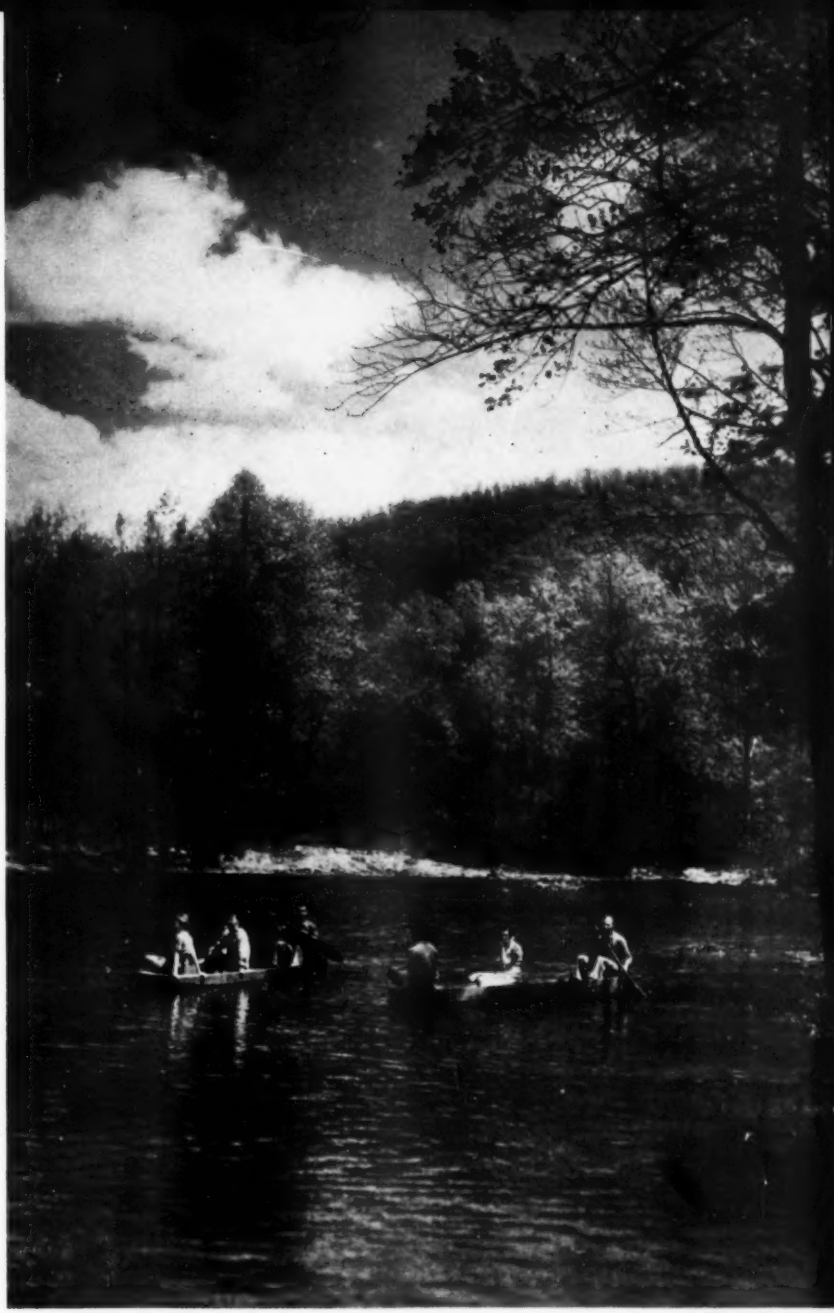
made the accusation that the Cherokees wished to "tear down the temple of science, that a wigwam might rise in its place."

To this the Cherokee chieftains replied with characteristic oratory: "It is our desire that monuments of science may be raised, by our hands in the dust of our progenitors, from which the beasts of the fields have receded, and the wigwam is tottering into ruins. The bow and the quiver are laid aside, and the pursuits of the chase are forgotten. The ax, the hoe, the plough and the shuttle are introduced and progressing like a consuming fire and it is hoped that a mist will not arise to dampen its progress."

The conclusion, however, to this flowered reply, was that no more cessions would be made, so that the treaty which followed the line of the Chestatee remained the last between the white and red man in the southern mountains. The word Chestatee itself means "not to be sold."

Near the boundaries of the Chattahoochee Forest in northwestern Georgia was made the greatest single stride of any nation in the history of civilization. There, in twelve years, Sequoyah, a Cherokee chief, worked out a phonetic alphabet of the Cherokee language. It proved so simple and adaptable that within two short years after its completion in 1821, the entire Cherokee nation could read and write the language Sequoyah had given them.

Seven years after this alphabet had been submitted to the council, the Cherokee Indians set up their own newspaper, *The Cherokee Phoenix,* with columns printed both in Cherokee and English. The New Testament of the Bible was translated into Cherokee and a Cherokee hymn book published. But the new nation was short lived. Eleven years after the tribal councils had banded together and declared themselves an independent nation of the world, their new era of progress came abruptly to an end. In a surprise move, they were driven from their homes. Their prize possessions, books, papers and houses were burned and all but a few individuals who escaped into the hills, were marched westward on one of the saddest treks of all times — to a new reservation beyond the Father of Waters.



Kenneth Rogers

Boating on Lake Winfield Scott, one of the many surpassingly beautiful play areas on the Forest. This lake, approximately 3,000 feet above sea level, is stocked with rainbow and speckled trout — irresistible lure to Waltonians

The legends left behind were many. There was Trahlyta, the Forest Flower, who lay buried in Stone Pile Gap. There was the high mountain where Nunnehi, the little friendly spirits of the Cherokees, lived, and Yahoola, the deep, quiet valley, named for a beloved trader among the Indians. Some of the old settlers claim that they can still hear his pony bells on a moonlight night. There was Track Rock Gap, where soapstone formations with tracks of unusual design were claimed by archaeologists to be an outstanding discovery of antiquity.

"But who were the first white men in this country?" I asked. "Was it DeSoto's expedition, or the English?"

"Nobody knows," the ranger replied. "One story is that over a hundred years ago, some miners, digging in Nacoochee Valley, found a subterranean village, with houses built of notched logs. They found large skeletons, buried in walled sepulchres, with conch shells, pipes, inwrought copper and other curious pieces of handiwork. One historian of Copenhagen says that America was discovered in 985 by Biaske Horjeufsen and that a colony from Wales settled here at the same time. Those early Europeans may have been exterminated by the Indians who came in from the north. We do know that the

Indians had no knowledge of inwrought copper. Nor did they bury their dead in walled sepulchres. The Welsh colony in the tenth century may have been our first settlers on the Chattahoochee Forest.

"In 1540, DeSoto passed somewhere through this section of the country in search of gold. There is controversy as to his exact route, but when the English came, many Spanish coins were found among the Indians.

"Sometimes it's hard to realize," the ranger continued, "how closely related we are to the remainder of the world. The last few months, when a world cataclysm over Czechoslovakia was almost inevitable, brought back to my mind the story of some of the first settlers in this land of the Blue Ridge. Oglethorpe, the founder of Georgia, was petitioned by Count Zinzendorf to be allowed to bring over a religious group from Bohemia and Moravia, two states of Czechoslovakia. They came over in 1735, settled throughout the coastal regions of the state and made excellent colonists.

"When war was declared against the Spaniards in Georgia, those Moravians, as they were known, refused to fight with the English, saying that they had crossed the seas into a strange land for religious purposes. Their arguments were good and Oglethorpe exempted them from the war.

"After the Battle of Bloody Marsh, when the Spaniards were driven southward into Florida, the bitterness in the hearts of the English grew so strong against the religious colonists that they were forced to leave their new homes and move on northward. Some settled in the mountains of northern Georgia. Others went on to North Carolina and even to Pennsylvania. Many of those returned to the south in later years, but in the Blue Ridge today, scattered throughout the Chattahoochee Forest, we still have descendents of those men and women who came over from central Europe—from Saxony—more than two hundred years ago."

"DeSoto never found gold," I suggested, "but it has been found in north Georgia, hasn't it?"

The ranger grinned broadly.

"Didn't I tell you that our roads are being paved with gold?" Arthur said. "We have a quarry behind my place. We have been crushing granite and quartz and dumping the stone on our roads for more than three years. The other day, one of the fellows discovered yellow specks in the stone. We sent samples to the State Geologist's office in Atlanta. The granite assayed $3.50 and the quartz $6.50 a ton. We sat down and estimated that, at those figures, we have dumped over $15,000.00 worth of gold on our roads."

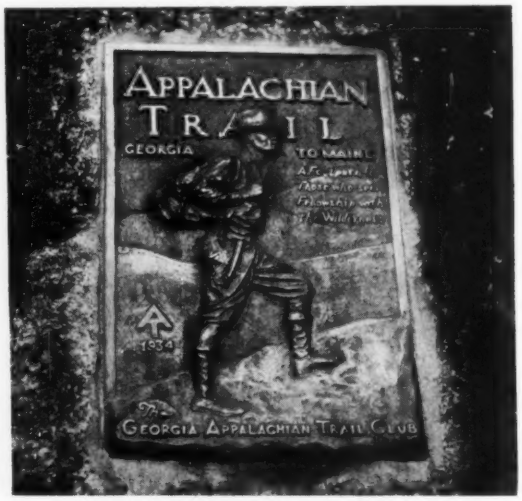
"That's not the first gold ever found in this country," I said.

Arthur shook his head.

"A negro servant, returning from North Carolina in 1828, made the original discovery. He stopped at Duke's Creek and panned out some of the yellow metal. His discovery brought a large number of people into this country—miners, gamblers, and all types of human beings. So much gold was found that in 1836, a United States Mint was established at Dahlonega, just south of the present forest boundary. The name Dahlonega itself is from the Cherokee and means *Yellow Money*. That section was then the center of gold activity of the United States. Old mines still may be seen on the edge of the forest. Huge towns were born and died in two decades. Auraria, a town of many thousands, is today a crossroads with a few houses. During the time in which the mint was located at Dahlonega, over six millions of dollars were coined. Altogether, over seventeen millions of dollars in gold was taken from these hills."

In 1849, Sutter's Mill in California captured the spotlight of prosperity. The mines in northern Georgia closed. Prospectors, miners, and gamblers moved westward seeking greater riches in the gold fields, and the Blue Ridge was left once again to the solitudes of the forest.

Today, a few individuals still make good wages panning the streams in and around the Chattahoochee Forest, and with the high price of gold, a few of the ancient mines have been reopened and are worked at a profit.

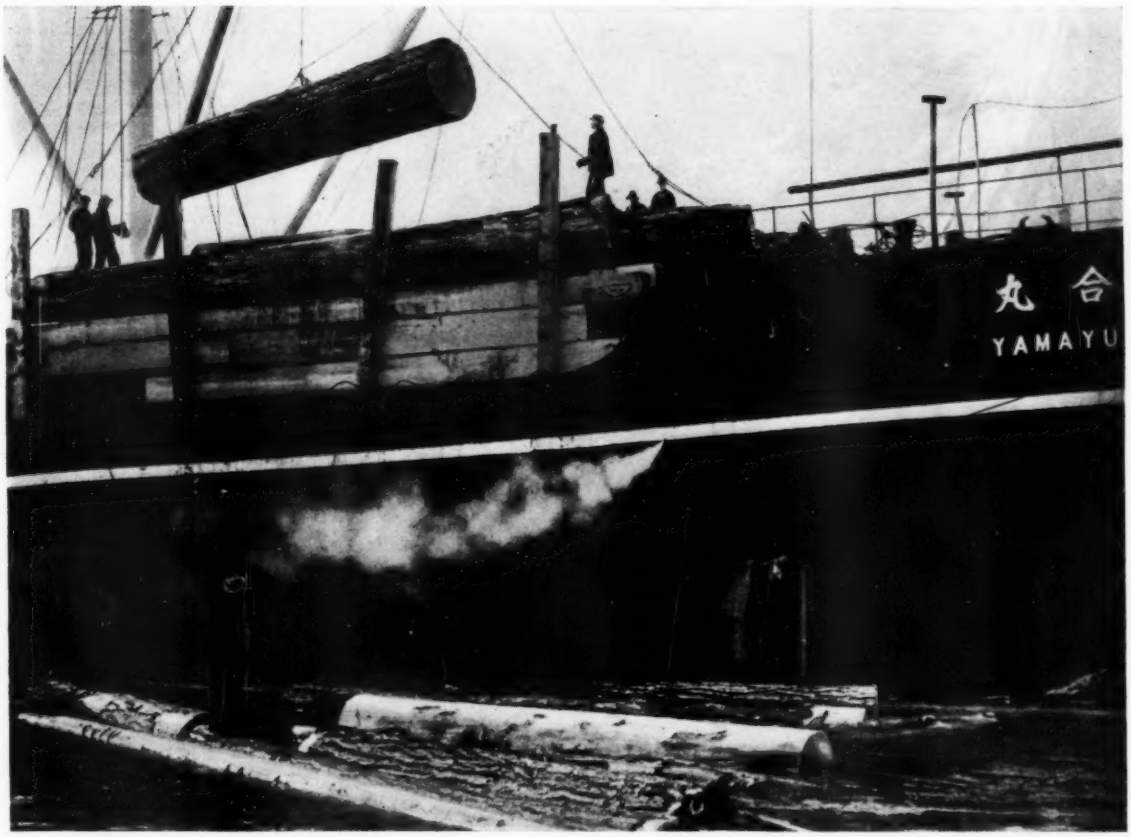


An Appalachian Trail marker at Neel Gap, Vogel State Park, within the Forest

In addition to gold, a number of precious and semi-precious stones have been found within the boundaries of this national forest. Several valuable diamonds were discovered in connection with the placer gold mines and a number of rubies and sapphires were brought out of the extreme northwestern part of the state. The most valuable pearls ever found in Georgia were not taken out of oysters of the seacoast, but from fresh water mollusks in Rabun County, within the forest.

Until the beginning of the twentieth century, the north and south sides of the Blue Ridge were strange lands, one with the other. While the Unicoi Gap road had been constructed in 1813 between Savannah, Georgia, and Echota, Tennessee, the Capital of the Cherokee Nation, and was the first road built across the Blue Ridge, it helped but little to connect the southern plains with the upland coves and valleys. With the coming of the automobile, new roads began to appear. The Tesnatee Gap road was one of the first. Only a few years ago, it was necessary for every old T-model to turn and climb the last two hundred yards in reverse gear. On top of the gap, it would park and cool, while the owner dug his ax from under the rear seat, cut a large tree, fastened it to the rear end as a brake to help retard the progress of the T-model downhill.

During the past few years, with an increasing demand by the traveling public, new roads have been constructed and the two lands are strangers no longer. Cooper Gap, Woody Gap, Neel Gap, Unicoi Gap, Dick Creek Gap—all have fine highways from north to south. As a reminder of the olden days, the county lines still follow the main top of the Blue Ridge. (*Continued on page* 270)



Loading Douglas fir peeler logs at Grays Harbor, Washington, on the Japanese ship "Yamayuri-Maru" destined for Japan, where they are manufactured into plywood by Japanese labor paid three cents an hour to compete in world markets with American plywood mills, paying seventy-eight cents an hour

THE "GREEN GOLD" RUSH IN THE NORTHWEST

BY AXEL H. OXHOLM

Publication in the March issue of AMERICAN FORESTS of a brief statement by Mr. Oxholm on the log export situation in the Pacific Northwest attracted such wide attention and interest that the Editor asked him to present the subject more fully. This Mr. Oxholm has done in "The Green Gold Rush in the Pacific Northwest." The article is presented that readers may have a clearer understanding of the effect of export policies, as viewed by the author, upon maintenance of forest resources and dependent industries in the Pacific Northwest.

ON THE western slopes of the Cascade Mountains extending through the states of Washington and Oregon is found the world's largest area of virgin softwood timber. Here is the natural habitat of Douglas fir. No country in the world has softwood timber of comparable quality.

This timber wealth has been the basis for a large and well developed wood conversion industry, employing tens of thousands of workers at wages higher than those received by labor elsewhere for similar work. In short, timber is by far the most important natural resource of the region and the future of the Northwest is intimately linked up with the resource.

Lately concern has been felt, particularly in Washington, over the rapid rate at which these irreplaceable stands of high grade Douglas fir timber are being cut. Such industries as the plywood industry which depend on the highest grades of logs for raw material stand to be the main sufferers. Under present conditions, it is not likely that any new plywood plants will be built in the State of Washington. The reason is that the raw material situation already has been seriously aggravated through the exportation of large quantities of fir logs suitable for plywood manufacturing purposes.

The Northwest plants are far removed from the principal domestic markets. They, therefore, early developed foreign markets for their products, thereby stabilizing industrial and employment conditions. While not large in volume, this export trade is a very important balance wheel.

During the last six years, however, foreign countries, desirous of giving employment to their own labor, have

put into effect restrictions and even import bans on Northwest manufactured wood products. At the same time, they have sent their ships to our shores to buy our best logs in the round and to transport them for manufacture in their countries. The result has been disastrous to both American mills and labor and the export trade in many lines of finished wood products is as good as lost.

Our Douglas fir virgin timber has no equal in the world. We have a practical monopoly on this raw material. While it is true that tropical hardwoods of large dimensions are available in the Philippines, Latin America and Africa, they are not suitable for the same purposes as Douglas fir, being generally cabinet woods and, in most cases, their cost is prohibitive for ordinary construction purposes. Therefore, Japan, Germany, Italy and a dozen other countries come half way around the globe to secure our log supplies. Even British Columbia, which at present is our largest log buyer, does not possess quality timber of this type.

The situation is without parallel in any civilized country. We are maintaining in the Northwest hundreds of thousands of able-bodied men on relief rolls. At the same time our foreign policy permits an unrestricted export of the most important natural resource of the region on which our timber workers depend for a living through its conversion in our own mills. This export log trade increased from less than 10,000,000 feet in 1932 to to 132,000,000 feet in 1936. Japan alone increased its imports from 4,500,000 feet of fir logs in 1932 to 74,600,000 feet in 1936.

This was the last normal year before the present hostilities in the Orient. There is little consolation in the fact that our log exports have decreased to about 68,000,000 feet in 1938 on account of the fact that Japan could only afford to buy about 5,000,000 feet of our logs. Japan has, in a few years, developed a plywood industry which exceeds the gigantic Northwest plywood industry in capacity. The Japanese have faithfully copied American machinery and do not even observe the formality of paying royalty on American glue patents. Their labor receives three cents an hour against seventy-eight cents average hourly wages in the American mills. No wonder that the Japanese plywood mills have taken away our foreign markets and, in addition, are selling Japanese manufactured plywood in our own domestic markets, where they have no difficulty in meeting American competition.

We are facing similar competition in the world's markets from Japanese controlled China, also a very large importer of our logs and an important plywood producing region. Germany, which some years ago annually imported about 12,000,000 feet of our plywood, did not import from the United States one foot of this commodity in 1938 because we furnished logs instead from which Germany with German labor manufactured its own plywood. There is an import ban on our plywood in Germany, while all other countries, producing plywood for export but refusing to sell their logs, increased their export sales to Germany by fifty-four per cent in 1938 over 1937. One country after another has followed Germany's example and our plywood export trade has shrunk from 68,000,000 feet in 1933 to 18,000,000 feet in 1938.

The situation in regard to British Columbia is grotesque from a conservation point of view. At the same time we are exporting about 30,000,000 feet of high grade fir logs annually to that province, where they are turned into finished products for export, we are complaining of Imperial preferential duties which enable the Canadians to enter the United Kingdom on a duty free basis with articles made from our raw material and produced under much lower wage standards. Not satisfied with this assistance given our Canadian competitors, we import large quantities of medium and low grade softwood timber from British Columbia, forcing our own loggers to leave such timber on the ground in the woods because the imported logs undersell our own domestic supplies. It is this class of logs which represents the first crop from reforestation.

The economic policy of the Northwest is incompatible with sound forest management and reforestation efforts but it cannot be altered as long as the law permits this unrestricted import and export of logs. The few concerns in the Northwest which are actively reforesting their lands and practicing selective logging have more optimism than present conditions would seem to warrant. Many loggers do not seem to understand that they cannot have their cake and eat it too. In other words, by exporting choice Douglas fir logs of which there is a limited supply they are undermining the position of their best customers, the domestic mills. At the same time, they are depleting the remaining stands of choice timber and thereby forcing industry from the region.

Even timber cut on national forest lands can be exported under existing laws. Evidently the taxpayers' money is spent for the raising of timber for the purpose of providing work for labor abroad and thereby creating impossible competitive conditions for our national industries. It is only too apparent that our federal authorities have paid scant attention to these irrational conditions. We in the Northwest still remain "the hicks from Red Gap, Washington," as far as many government officials are concerned.

More than one hundred years ago, a Swedish forestry expert declared: "The manner in which the Swedish forests are managed will determine whether or not the country will remain a civilized country." This statement might just as well be applied to the Pacific Northwest at present. There is now before Congress a bill (S. 1108) to prohibit the exportation of high grade Douglas fir logs and all Port Orford cedar logs. Unless this legislation is passed, our virgin forests will be prematurely depleted. This will mean that there will be no private funds to carry on reforestation enterprises because industry must rely on the virgin timber to provide the means. Neither can we expect reforestation efforts based on supplying raw wood to our foreign competitors to maintain our present standards of living.

"The woods were made for the hunter of dreams,
The brooks for the fishers of song;
To the hunters who hunt for the gunless game
The streams and the woods belong.

"There are thoughts that moan from the soul of pine,
And thoughts in a flower bell curled;
And the thoughts that are blown with the scent of fern
Are as new and as old as the world."

Sam Walter Foss
(Reprinted)

LET'S GO FISHING

By MORA BROWN

Forest Service

IF THE joy of fishing consisted only of pitting my lures against a fish's hunger, or if I fished only to satisfy my own appetite for butter-browned and lemon-garnished trout, I could not glory in the sport; I would be too conscious of the fish's viewpoint. But for me the joy of fishing is not bounded by the two banks of a stream, nor is all my catch confined within a creel. Often, even, I have brought home not a single fish, but never have I failed to make a catch.

Paradoxical? Not at all.

Have you ever forced yourself from a warm bed into a chilling mountain dawn? Have you ever shivered through doughnuts and coffee with your eyes on frosted grass and the icy edges of a creek? If you have not, or if the thought repels you, dream on in your cozy bed. But if the thought appeals, pull on your boots and jacket to race upstream, past trees and hills and foaming brooks, to a meadow in a shallow cup of mountains. Tramp with me across long grass until we stand beside the humming of riffle. Then—look.

In the west is a dull grey sky against which kneel the cobalt mountains like a row of fat old Buddhas before a faded curtain. But the eastern sky is neither grey nor dull. It is blushing with sunrise, and holding clouds with narrow hems of fire. Against it stand the eastern hills in silhouette, their evergreens in solemn dignity against the glowing sky. We watch, wait, forgetting all about the quiet pool in the bend below the riffles. And suddenly the great fire circle slips above the saddle of the hills.

Again we face the west and find the heads of all the Buddhas turned to gold, the faded curtain dyed a powder blue. We watch golden robes lengthen, until mountains, trees and meadow are warmed with amber light. Dew

sparkles on the valley floor; and where our boots have skimmed the grass are two dark lanes of green leading to a spider web of crystals at our feet. Above our heads the birds are singing anthems. The woodpecker is drumming his delight. The bold nutcracker lilts across the sky trailing his harsh call. About us hangs the clean air, the smell of waking earth. A cold breeze laughs into our faces and skips away to warm itself against the sun.

If you saw this with me, you did not catch a fish—you caught a sunrise.

Cautiously we round the bend and dip into a little canyon that echoes the music of a waterfall—a youthful waterfall that spills itself across a fallen log and runs to hide beneath a willow bank. Here we stand knee-deep in ice water and ease our hooks into the water. At once a curving eddy takes them in its arms and gives them to the depths under the willows. The shadows are dark down there, but through the lazy water and the reflected green of willows, our gaze is caught by a moving black shadow. We pull our lines—the shadow seems to follow. We slacken our lines, but the shadow comes on. Is it a fish? A fish?—to contrast so amazingly with water? We tingle with the strangeness of it. Without knowing, we have approached the log, and stand in full view of the pool. Yet nearer comes the strange swimmer toward a gravel shelf at the end of the log; and in the water we discern, not fins and scales, but legs and fur. Like a flash a black form breaks the water, streaks across the shelf, and disappears. We have interrupted the fishing of a mink.

Your pole has drooped across the log, forgotten; but suddenly it leaps from your hand. You catch it, fumble, catch the very end. It jerks and bobs, bending nearer and nearer to the water. Your reel whirls, clicking out the yards, and the struggling pole escapes your struggling fingers. And when you have it in your hand again, the line is limp, the hook empty.

But there is more to catch. There are fields of gold and slopes of blue; a peak that wears its glacier like a diamond, little chicks of baby spruce trees huddled at their mother's feet. We cross the trail of moving ants that deviate from their straight line for neither hump nor hollow. At noon we find ourselves upon a sandy shore edged with heavy brush. Here we are greeted by the constant bobbing of a sandpiper which repeats over and over his plaintive call, "Pee-weep, pee-weep, pee-weep."

With our eyes on the sandpiper, we move toward the brush. Instantly its teetering becomes agitated, its cry becomes alarmed. Something amazing happens to the frightened bird; it flutters along the ground, one wing hanging limp and useless. We turn from the brush, anxious to help the sufferer; but hurry as we may, it struggles and cries always just beyond our reach. We follow to the far end of the sandy shore—and find ourselves suddenly deserted. The sandpiper is darting overhead on wings that fairly hum. Its cry is free and mocking, the laughter of a bird. And why not? She has lured intruders from the nest of grass and leaves beneath a bush, from the spotted quartette of eggs that nestle in it.

We sit beside a bed of wild strawberries to eat our sandwiches and cake, and we pick the small sweet fruit for our dessert. Our tablecloth is cool green moss, our roof the print of lacy blue spruce branches against a cloudless sky. At two I snag my hook in a bush, and its rescue leads us to the unbelievable smallness of a humming bird's nest, and the brave green-throated mother on her fragile eggs.

The fish ignore our coaxing, but we catch the sight of sheep upon a hill. Above the liquid song of water, we hear their bleating and the barking of the dogs. We watch a porcupine trundle through the grass, calm, unhurried, as if he found life very pleasant. We flirt the afternoon away with chipmunks, birds and flowers, and then at sunset. . . . .

We see the morning in reverse—the grey east, the fiery west that paints the landscape rose instead of gold. Shadows point long fingers toward our camp, but we are slipping down a willow path. At its end is a small creek that tinkles with a waterfall, and curls about a grassy clearing. With nothing added it is a picture, but as we sit, silent, watchful, into it prance as lightly as dancers a doe and spotted fawn. The breeze runs from us and keeps our presence secret, but a small twig snaps beneath my hand. Instantly the mother's head is high, ears forward, nostrils wide, dark eyes anxious. But fate is kind, and the two heads bow to touch the water. We do not move.

Dusk creeps up the valley. The shadows gather underneath the trees. The birds are still. Even the water wears a mute and sings more quietly. Tired, hungry, dirty, we travel back to camp without a fish. . . .

But oh, my friend, was ever catch more wonderful?

Four Walls Cannot Hold Me Ever

Four walls cannot hold me ever!
I am a child of the sun;
This body is one with the earth, my mother—
In my veins run
The sap of green trees and the salt of blue seas
** * * When my life is done*
Bury me close by a mountain river;
I will live again
In the crystal shallows that water the willows;
I will live in the rain
That freshens the faces of alpine flowers;
I will live in the snow
That cushions the trails on high mountain ridges
Where the mule-deer go.

O I have known the ecstasy of singing mountain rills—
"The little streams that sing among the hills"—
And I have felt the hushed sweet mystery of dawn
Beside a reedy lake few eyes have looked upon,
(And heard wild wings at midnight in the sky)
And I have known a rapture in the cry
Of kill-deers in the springtime, of sand-hill cranes in fall.

And now I know one Spirit lives in all
And all the world is closely kin to me—
I am full-cousin to the Forest Clan—
Blood-brother to the tree!

—R. V. Crater.

EDITORIAL

INJUSTICE

IN AN official press release issued by the Department of the Interior on February 9, Secretary Ickes publicly questioned the integrity of Mr. William P. Wharton and the National Parks Association, of which Mr. Wharton is president. Responding to a personal invitation to become a member of the Association, the Secretary used the publicity facilities of his Department to tell Mr. Wharton and the general public that the Secretary of the Interior doubts his loyalty to the national parks and questions his statements relative to its work. The Secretary accompanied his press release letter to Mr. Wharton with a separate press statement in which he said the Association "may be the stooge for lumber interests" but that it does not represent or speak for the National Park Service.

The National Parks Association was founded by Stephen T. Mather, first director of the National Park Service and known the country over as the father of the national park system. It is an organization of public-spirited citizens who give voluntarily and gratuitously of their time and means to maintain the high objectives of the national parks as formulated by Mr. Mather and reaffirmed by all Secretaries of the Interior down to the present incumbent. The Association is governed by a board of forty-five trustees, one-half of whom are elected at large and one-half of whom are representatives named by scientific, educational and public service organizations interested in the things for which national parks were created to preserve and protect. Among the latter are such organizations as the American Association for the Advancement of Science, the American Council on Education, the Botanical Society of America, the General Federation of Women's Clubs, the National Academy of Sciences, the Garden Clubs of America, and the National Research Council. No lumberman is on its governing board; no representative of the lumber industry among its officers. The Association states that if any lumbermen are among its members it is not aware of the fact.

No public organization in America has been more vigilant and more aggressive than the National Parks Association in defending the integrity of the national parks. Its past presidents have been the late H. B. F. MacFarland, an eminent Washington citizen and for ten years Commissioner of the District of Columbia, the late Secretary of the Smithsonian Institution, Charles D. Walcott, former President Herbert Hoover, the late George Bird Grinnell, Wallace W. Atwood, President of Clark University, and Cloyd H. Marvin, President of George Washington University. In recent years the Association appears to have incurred the enmity of Secretary Ickes because it has differed with some of his policies and recommendations and has refused to be the mouthpiece of his National Park Service.

Mr. Wharton, now president, is a man widely known in many fields of conservation. In addition to being president of the National Parks Association, he is vice-president of the National Association of Audubon Societies, a director of The American Forestry Association, chairman of the National Conference on Dutch Elm Disease Eradication, and a director of the Massachusetts Forest and Park Association. He has never been a lumberman and has no affiliations with the lumber industry. As a private citizen, Mr. Wharton has made conservation his main public interest for more than twenty years, giving generously of his means to promote the establishment of state and federal national parks, forests, and wildlife refuges, the teaching of conservation to children, the control of the Dutch elm disease and many other worthy projects. In fact his good deeds in conservation are so numerous and so modestly done that even his best friends do not know their number or extent.

Quiet, unassuming, generous in the public interest and intellectually honest in the highest degree, Mr. Wharton is an all too rare character asset in the conservation field. Among those who know him, he needs no defense. But when one of the highest offices in the federal government, apparently without investigation of facts, is used to discredit and by innuendo to misrepresent to the uninformed public a man of his unimpeachable character, the integrity of the conservation movement no less than human justice demands that the facts here stated be made known.

WHOSE RIVER IS IT?

By CLELAND VAN DRESSER
Photographs by the Michigan Department of Conservation

Bond Falls — before the diversion of the water — filled with beauty, a fisherman's paradise

UP IN THE Lake States there is a court fight going on. The issue is between the citizens of a sovereign state and a powerful hydro-electric power company, and the spoils of war is a sizeable stretch of a beautiful river.

The power company proposes to divert this river across six miles of timberland and empty it into another river which serves as the fountain head of the electric energy created by huge turbines. The object of such an engineering feat is to increase the power output of these turbines. The people, through the State Department of Conservation, maintain that private corporations and utilities have no authority to help themselves to public property in such wholesale fashion.

Both sides have their arguments, both believe they are absolutely in the right. At all events, this unprecedented battle is now awaiting a hearing at the county court. It is expected eventually to reach the State Supreme Court before a final decision is rendered, and its outcome, in all probability, will be a decree applicable to the use of similar natural resources in the United States.

In general, what will be determined is this: Who has the prior right to the uses of a flowing body of water within a state,—the people who live in that state, or private interests that seek to exploit it for industrial purposes? In particular, however, the basic legal question to be decided may be reduced to whether or not the public has anything like property rights in a river's "scenic attractions." Diversion of the river, it is argued, will destroy two beautiful waterfalls, outstanding scenic attractions of the county. Therefore, what part, phase, or degree of those scenic values is the State Department of Conservation, for instance, duty bound to "protect and conserve"? What other rights or equities does the public have in a river which is "vested with a public character," as a court recently ruled the river in question is? The public may navigate and may fish in such waters, no matter who owns the riparian lands, but has the public property rights where scenic attractions are concerned? That is the new and major question, it appears, which must be decided.

The scene of the conflict is the Upper Peninsula of Michigan; the warring parties are the Copper District Power Company versus the Michigan Department of Conservation, and the prize is the middle branch of the

Ontonagon River located in the county of the same name.

Here is the situation as it exists today:

Several years ago the Copper District Power Company, operators of immense power and mining interests in the Upper Peninsula, decided more hydro-electric power was needed to augment the output of its huge turbines located on the south branch of the Ontonagon River. In order to produce this added electric power, more water was needed. The south branch of the smoothly flowing Ontonagon was incapable of supplying the desired increase, but six miles away, and somewhat paralleling its course, was its sister stream, the Middle Branch.

Why not, reasoned William H. Schacht, president of the power company, join these two rivers together, thereby increasing the flow of water, which in turn would spin the turbines faster, and, if necessary, permit the erection of additional power plants? Officials of the power company then proceeded according to Michigan law- -they approached the Board of Supervisors of Ontonagon County requesting permission to erect a dam on the Middle Branch of the river at a location known as Bond Falls but so far as can be determined made no reference to the proposed diversion.

After due course of time this permission was granted, and construction was started. Today the dam is nearly completed, and the Middle Branch is practically stopped at Bond Falls by a man-made lake four miles square and containing 45,000 acre feet of water. An engineering combination of a ditch, concrete pipe and an enlarged natural stream bed leading from this lake now carries the bulk of the Middle Branch six miles across country and dumps it into the South Branch where it is potentially able to serve its purpose of increasing the electrical power output of the company's turbines.

As for the existence of the Middle Branch below Bond Falls, a twenty-four inch pipe, now leading from the foot of the dam, is supposed to conduct enough water adequately to insure its future.

At this juncture in the proceedings the power company bumped into a problem the like of which the state

The Falls shortly after the diversion of the river was begun

And,—later when diversion had stopped the flow over the Falls completely

of Michigan had never before experienced, for the State Conservation Commission and the Department of Conservation wanted to know very definitely who had the authority to divert rivers? Building dams for power purposes was all right—it was in the modern, industrialized scheme of things—but at least the river was left where it was. Mr. Schacht had explanations for such unusual activities. Briefly, his reasons were these:

To begin with, explained Mr. Schacht, the flow of the Middle Branch of the Ontonagon River is very irregular (which is true of all rivers in Upper Michigan). As a rule, during two months of the spring, fifty per cent of the run-off occurs, producing a heavy flow of water. In contrast, throughout the months of August and September the river frequently subsides to a mere trickle.

The dam at Bond Falls, maintained the power company helmsman, can produce a balanced flow by holding spring freshets in check, thereby storing enough water to permit the twenty-four-inch pipe at the foot of the dam to keep the old river alive while the diversion canal, three-quarters of a mile above the dam, will conduct its gurgling contents six miles to the South Branch, which will in turn speed up the wheels of industrial progress by spinning the turbines faster.

Competent engineers have figured out all this complicated business and show in numerical logic how the dam will perform the double duty of maintaining the Middle Branch, while at the same time super-charging the South Branch. The discharge from the twenty-four-inch pipe, they claim, will be ample to assure the continuance of all aquatic life below the dam as well as provide sufficient flow of water to maintain the scenic and esthetic values.

Granting all of this to be true—and there are plenty of conservationists in Michigan who won't—from whence comes the right to divert a river?

Lawmakers, engineers and officials scratched their heads and pondered. Nobody came up with the answer for the simple reason that there wasn't one. Then Peter J. Hoffmaster, director of the Department of Conservation, and members of the Conservation Commission, produced a law established by the State Supreme Court which reads: "The lower riparian owner has the right to have water come to him as in a state of nature it is wont to flow, subject only to reasonable use by the upper riparian owners."

The discovery of that section of the law caused great elation in the camp of the conservationists for, despite the fact that the power company apparently owned the entire dam site, the state owned 240 acres of land below Bond Falls with a three-quarter mile river frontage. Also, several parcels of land affected by the reservoir flowage are owned by the Federal Forest Service, which so far as is known, has never authorized such flooding. This being the case, the state was the "lower riparian owner" to some extent, and if the power company's plan of diverting the major part of the Middle Branch was carried to completion, certainly the water would not arrive below Bond Falls "in a state of nature it is wont to flow" for the obvious reason that most of it wouldn't be there.

Then there was the question of the fishing rights. A few years ago an exclusive angling club in Lower Michigan closed a section of the Pine River to the public. The club owned the land on both sides of the stream and figured the water was included.

A local angler, Gerhardt by name, feeling that his rights were being taken away from him, defied the "no trespass" signs and went fly casting. He was immediately arrested and tried in the local court, but to the surprise of the club officials, the decision went against them. Gerhardt and anybody else had a right to fish the stream as long as they didn't trespass on the land. The case went to the Federal Court of Appeals sitting at Cincinnati, and Judge Raymond of that judicial body upheld the original decision.

Here, reasoned Director Hoffmaster, was another weapon. Fish, it appeared, were public property, and no single person or group of persons could claim to own them or prohibit the public catching them. By shutting down the flow of the river, the power company was certainly taking away public property.

Now armed, the Conservation Department went to court for the Middle Branch of the Ontonagon River. Alarmed at the proceedings, the Copper District Power Company agreed to halt construction until the case was finally settled in court, and for the first time in the history of Michigan a public utility was challenged concerning its right to use the waters of a river.

Mr. Schacht and the board of governers of the Copper District Power Company were astounded—the thing was unprecedented. A hasty conference was called and members of the Conservation Commission invited to visit Bond Falls, inspect the construction work and discuss the matter.

The commissioners accepted the invitation and journeyed to the enemy's camp. Tactfully, Mr. Schacht suggested that if his company would guarantee a minimum amount of water for the Middle Branch, would not the commissioners and Mr. Hoffmaster agree to let the construction work continue?

Equally tactfully, the commissioners and Mr. Hoffmaster declined, for neither they nor any other official in the State of Michigan had the authority to accept or reject such a proposal.

If the Copper District Power Company chose to erect a hydro-electric plant at Bond Falls and utilize the water backed up by the dam, it had a perfect legal right to do so — but there was no law or court decision in the state giving or denying permission to divert the river.

The case as it stands now is a stalemate. The power company has spent close to half a million dollars constructing the dam and (*Continuing on page* 286)

CONSERVATION

Shadows across the face of
the earth—
Furrows and ridges, holding
the soil in girth.
Grasses and shrubs, fruit of the
wild olive tree,
Storing life in the soil for days
that are yet to be.

Tangible things, and holding,
as sure as life,
The soil in place; and moisture;
as a thrifty wife,
Nursing roots and seeds—life
just under the earth,
Dormant as yet, awaiting the
season of birth.

Guarded from fingers of
clutching hands,
Insatiate for control of soil
and shifting sands;
Guarded, too, from force of
driving rain,
And streams, escaped their banks
and gone insane.

Impregnable stronghold of the soil,
defiant of failure;
These grasses that bind, furrows that build,
legumes that nurture.
What heritage is mightier than
a soil unthinned,
Where growing things guard against
wash and wind?

—Wanda M. Smith

PAINTING YOUR HOUSE

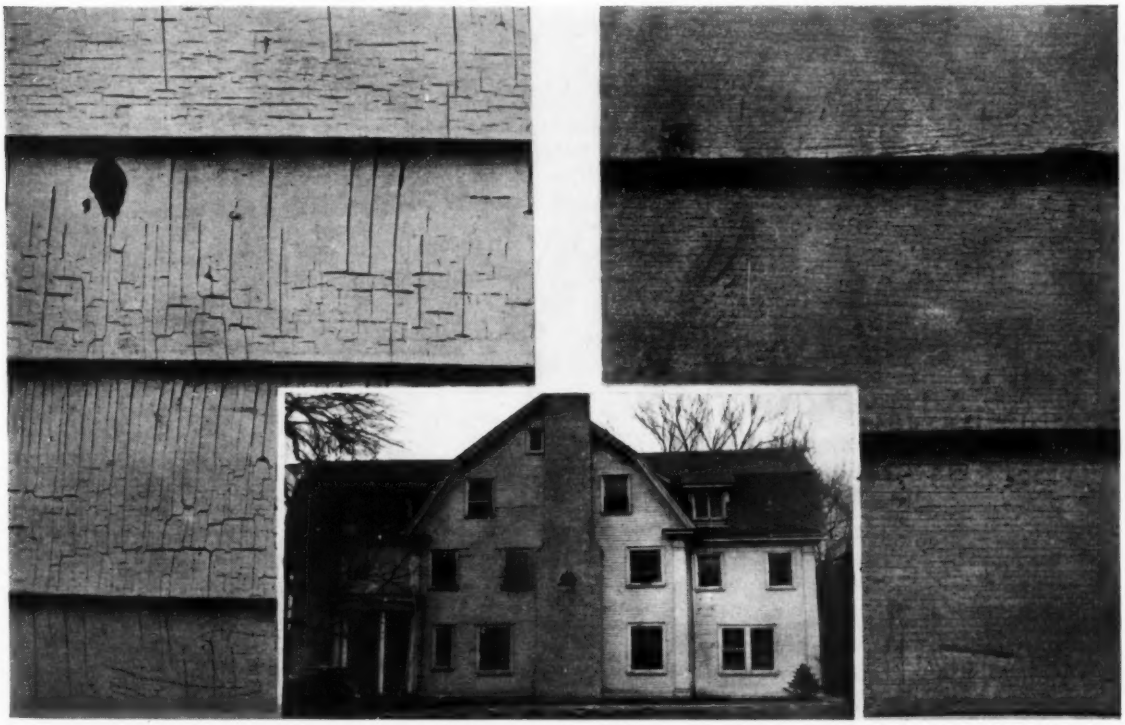
By F. L. BROWNE

The homes we live in form one of the greatest contributions of the forest to human comfort. In every house no matter what type its construction there is wood somewhere in large or small amount. With rare exceptions every home owner, therefore, is periodically confronted with the problem of painting and repainting the exterior wooden parts of his home, his garage or his barn. Beauty, serviceability and lasting qualities of the paint to be used are the owners hoped for realization. Unfortunately most home owners are ignorant of how to achieve this combination of results. The author of this article has spent many years at the Forest Products Laboratory, Madison, Wisconsin, studying paint with special reference to its use on wood. In "Painting Your House," he deals with the subject from the home-owner point of view.—Editor.

DISCUSSION of house painting usually begins with a consideration of the different kinds of house paint. You can buy paint and you can hire a painter but what you want is paint maintenance and that you cannot buy. The job of putting paint and painting together to make a program of paint maintenance is all yours. Whether you like it or not you cannot dodge the responsibility if you are a home owner. Your ignorance of the technical problems involved does not let you out. You pay the damages anyway if paint, painter, and program fail to fit together.

The new house starts out with a coat of paint that is durable for no more than four or five years. The house may stand for a century or two but let us say that it has an expectancy of half a century as a building of prideful occupancy. Ten or twelve renewals of the paint coating within that time are to be anticipated if you wish to keep the coating always in good condition without unnecessary expense. Since a worn out coating is not easily discarded renewal rather than replacement is essential for economy.

Renewal means that new paint is applied over what remains of the previous paint and that the composition of the renewed coating depends upon that of the old paints as well as that of the new paint. You therefore need good paint for *your* house, not just good paint in general. The latest marvel of the paint industry is no good to you unless you can be reasonably sure that it behaves properly when incorporated with the old coating already on your house. If repainting every four or five years seems reasonable to you and you hire good painters to do the work the annual cost of maintaining the exterior paint may well be less than a third of the annual real estate tax provided the maintenance program is properly guided. Two things should be watched carefully—stick to your pro-



For economy and good appearance your house should be painted every four or five years. Be sure that in repainting you always use the same kind of paint you start out with when the house is new. Above is shown an excellent reason why. This house was originally painted in color. Then a new sidewall was built on the right side, after which the whole structure was painted white. The detail at left shows the colored paint under the white—at right the section on which only white paint has been used

gram so that you always repaint a little before the coating begins to break up and stick to the same kind of paint with which you start out when the house is new. A systematic written record of the painting history helps materially in keeping the program on the right track. In noting the paint used, an accurate copy of the complete formula, or better yet one of the labels bearing the formula, should be preserved.

The time to consider the many kinds of house paint on the market is when choosing the paint for a new house or when failure of the program of maintenance has made it necessary to remove the old coating to start over again. The rival advertising claims and the conflicting opinions of experts may then be pondered carefully. Each paint will be found better and more durable than any of the others but no paint maker will allow himself to be pinned down to a claim of more than four or five years for the durability of his paint. When the field of possible choice has been narrowed down somewhat according to your likes and dislikes among the makers and dealers it is a good plan to look at some houses painted with the paints in question three or four years previously.

A survey of neighbors' experience is likely to prove a liberal education in paint maintenance. In the first place unless the neighborhood is very exceptional it will show that few owners stick consistently to one type of paint, follow a systematic plan of maintenance, or keep a record of the dates of painting and kinds of paint used. That is often why they get into trouble eventually. In the second place your survey will show that any one kind of paint may give satisfactory service or very unsatisfactory service according to its suitability for the maintenance program and its compatibility with the paints used previously. When a hodge-podge of different kinds of paint occasionally stands up well for a long time the owner is merely lucky. The wise owner plays safe by making changes in kind of paint only when he knows that past experience justifies the specific changes in question.

After surveying the neighbors' experience you may still feel unable to decide what kind of paint is best but probably will conclude that, for the new house, it is much less important than you originally supposed. Almost any one of the good paints on the market should prove satisfactory if you use it consistently in the future and renew it at the proper intervals. Make sure, however, that the paint you select is labeled with a complete statement of composition so that another one like it can again be purchased, even if the manufacturer meantime changes the composition of the brand you are now choosing.

Once your house is erected and painted no further thought should be given to the rival claims of different kinds of paint. The decision has been made. Stick to the kind with which you began. If for any reason something goes wrong and you are dissatisfied find out what was wrong and what can be done to set it right. Do not blindly experiment with some other kind of paint for you will merely make a bad matter worse.

Many house owners feel that painting every four or five years is unreasonably expensive. As a rule, of course, they belong to groups of lower income level to whom the cost of a paint job is a real burden and who in times of financial depression find it hard enough to keep possession of the house at all. In justification of their expectations there is a long tradition of American practice in house painting according to which maintenance programs with ten years or even more between jobs were taken as a matter of course. Programs with painting every four or five years are a relatively modern innovation perfectly proper where the standard of living permits but we must recognize that large portions of our population have not yet been lifted above the urgency of immediate necessity. If a man must choose between paint for the house and shoes for the children by all means let the children have shoes. The house will suffer less from worn out paint than will the children from worn out shoes.

The choice of suitable paints for programs with more than four or five years between paintings is greatly restricted. The old red or brown iron oxide paints were durable for as much as ten years but in modern times "barn paints" have deteriorated very seriously in quality until it is now difficult to buy a really good one. Two or three coats of aluminum paint are durable for very long periods but the metallic appearance rarely proves agreeable for houses, though it is sometimes attractive for barns and other utilitarian structures.

For the most part programs with long intervals between paintings are based on the assumption that each paint job will pass through a considerable period of neglect following the break up of the coating before another paint job is put on. The paint for such programs, therefore, must be chosen for its ability to retain a reasonably presentable appearance during the period of neglect and to leave a surface that can then be repainted without danger of impairing the serviceableness of the next paint job. Durability of the paint is not important, in fact the paint should not be too durable because the less of it left when repainting finally is done the better.

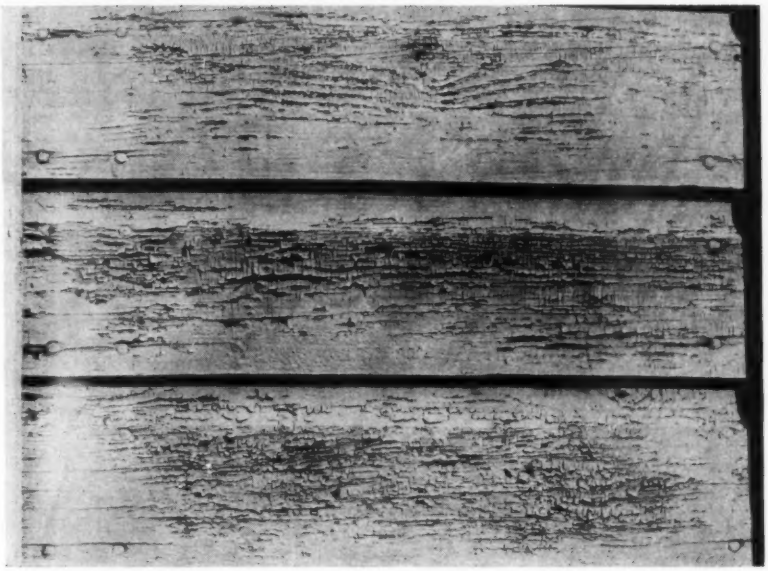
Of the so-called first grade white or tinted white paints on the market pure white lead paint is probably the only one that can properly be advised for maintenance programs that presuppose periods of neglect. The old tradition from which such programs come was based on the exclusive use of pure white lead paint because it was the only white paint available until comparatively modern times. All attempts so far to make white paints less subject to soiling and fading of tints and more durable have led to paints that are harder in nature than white lead paint.

Because the newer paints are harder they break up more objectionably when neglected and do not wear off as much by erosion with the result that, when the belated repainting is done, there are thick patches of uncertainly adhering old coating interspersed with patches of bare wood; the painter is unable to apply new paint smoothly, and the new job is less durable than the previous one. Ultimately complete removal becomes necessary, the expense of which is inconsistent with a program of extreme economy. Those who wish to wait a long time between paint jobs will do well to insist on pure white lead paint for white and tinted white paints.

If you belong to the relatively small class of house owners who insist upon superfine appearance obtained by repainting every year or two you have selected the most difficult program of all and must expect to pay well for it. Complete removal of the coating at intervals, say every ten years, should be anticipated. Fortunately the painter's blow torch is no longer the only means of removing old paint. There are now house paint removers on the market that will do a better job with less hazard of fire and usually at somewhat less cost. At best, however, complete removal is too expensive to put up with any oftener than is necessary.

The first difficulty with frequent repainting lies in the fact that the coating does not have time to wear away much between jobs, hence it becomes materially thicker at each painting. No paint behaves well when the coating is too thick. Cracks appear at an unreasonably early age and take the form of huge gashes. Coarse scaling sets in at an age when a thinner coating would not have be-

gun to break up at all. Each paint job becomes less durable than the one before it. For these reasons the least possible amount of paint should be applied at a time and the paint used should have unusually high hiding power. No more than one coat should be applied at each painting.



If you wait too long between paint jobs and repeatedly use paint of a hard type—this is the result. So unless you repaint frequently it is best to use pure white lead paint for white and tinted white colors

The second difficulty with frequent repainting is that incompatibilities between paints of different kinds are often more pronounced the less the earlier paint has weathered before it is repainted. Those parts of the house that are greatly sheltered from the weather are particularly prone to difficulty on this score. Meticulous adherence to the same type of paint for each painting is very necessary in programs calling for frequent repainting.

Those who paint so often may be deceiving themselves through a lack of understanding of the course of events in the aging of paint. Soiling of the coating progresses most rapidly during the first year or so, while the paint is still glossy. When gloss disappears and chalking sets in the dirt may begin to be dislodged and the cleanest and most pleasing period of the paint's life may continue until the coating finally begins to disintegrate. If white paint is repainted when at its dirtiest stage the period of best appearance may be sacrificed only to start in again with the dirt collecting stage. With white paints, a little patience while the coating sheds its dirt may be better than hastily repainting.

With tinted paints appearance is marred at first by dirt and later, as the dirt is dislodged, by fading of color. If the initial color must be maintained exactly frequent repainting may be necessary. A little more care in choosing color at first may make it less essential to retain the initial color exactly. Yellows and buffs can fade rather seriously and still look well but when light greens and light blues fade they look shabby. Too frequent repainting can often be avoided by considering the faded color as well as the initial color in selecting tints at the outset.

Those who are tempted to paint too frequently in order to keep particularly good appearance at all times might well consider washing as a substitute for some of the repaintings. Instead of painting every two years wash after a year and a half and repaint with one coat after three or four years. For such a program paint of rather hard type should be chosen because it lends itself readily to washing and since it chalks superficially rather than deeply washing restores practically the initial color. After washing it will be found that dirt collects less seriously than it did after the paint was first applied. Use of an alkaline solution of trisodium phosphate which removes some paint from the surface making the coating a trifle thinner is advised if washing is done.

GO WEST WITH THE TRAIL RIDERS OF THE WILDERNESS

Fear and turmoil grip the world today — but in the Wilderness there is peace and tranquillity. No sound of threat and counter-threat, no tramp of marching boots — only the age-old solitude where Nature still is supreme. Beyond all roads, uninhabited and unchanged, these kingdoms of the wild, ranging in size from half a million to nearly two million acres and concealed in the remotest corners of our western national forests and parks, offer an opportunity so many of us need today — an opportunity for mental and spiritual adjustment. For, as Thoreau wrote, "We need the tonic of the Wilderness . . ."

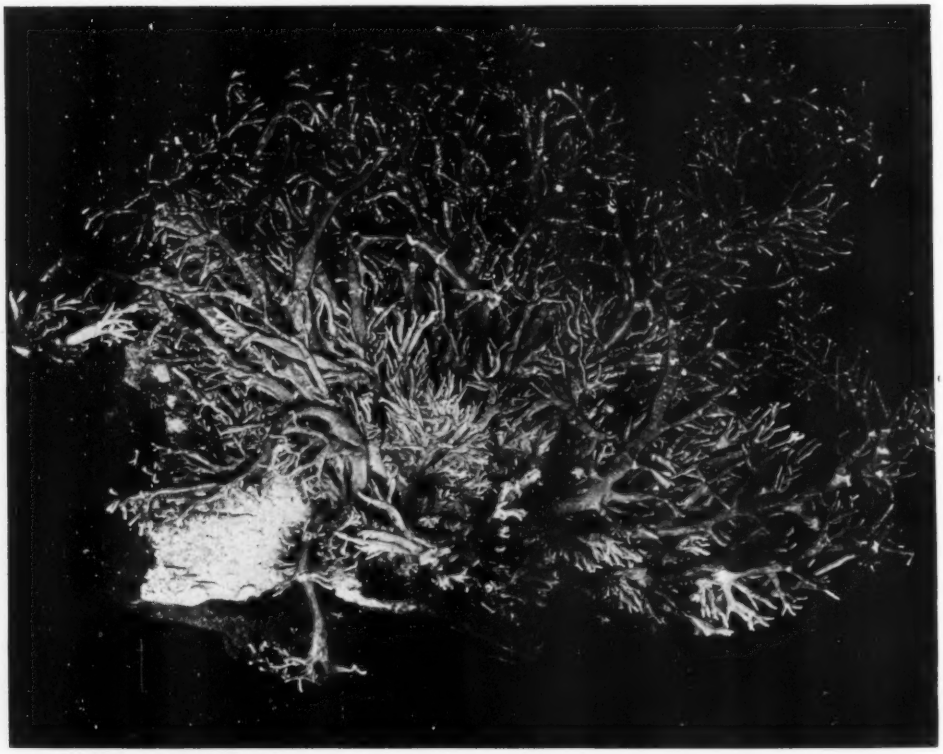
Few have the time, or the money, or the experience necessary to organize a vacation in the land beyond the road's end. Consequently, if these last frontiers are truly to serve the American people, it is necessary to provide simple and inexpensive means for their enjoyment. There must be some agency to plan, to organize, to guide — and at a cost consistent with that of other types of vacation. This service the Trail Riders of the Wilderness, organized and directed by The American Forestry Association, performs.

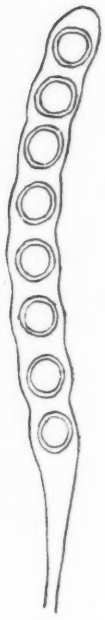
Since 1933, when the first party of Trail Riders was sent out by the Association, more than three hundred men and women have participated in twenty-two separate expeditions to the major wilderness areas of eight different states. Twenty-five hundred miles of wilderness trail have been explored. Each expedition is carefully organized on a non-profit basis, the riders paying an equal share in the cost of organizing and equipping the party — around ten dollars a day. Only expert guides, packers, wranglers and cooks are employed. Riding and pack horses are thoroughly trained to mountain travel. A physician is with each expedition. Foresters and forest rangers ride with the parties, as do representatives of The American Forestry Association and the United States Forest Service. The number of days spent in the Wilderness by each party ranges from twelve to fourteen.

Five expeditions are scheduled for this summer, one each into the Flathead-Sun River Wilderness of Montana, the Sawtooth Wilderness of Idaho, the Gila Wilderness of New Mexico, the Maroon Bells-Snowmass Wilderness of Colorado, and the Kings River Wilderness of California. So go west with the Trail Riders this summer and enjoy a vacation a hundred miles from the sound of an automobile horn—in a land where there is peace and tranquillity. For detailed information write The American Forestry Association, 919 17th Street Northwest, Washington, D. C.

LICHENS---NATURE'S PIONEERS

By
H. J. DODD





A FOREST IN MINIATURE—
Beautiful in appearance, the Coral Lichen, (Sphaerophorus coralloides) occurs on trees. The spore-sacs, in the globe-shaped fruits at the ends of the main branches, contain doughnut shaped spores. The sac shown at the right—greatly magnified—holds eight "doughnuts"

IF WE had before us a series of pictures, composing a continuous scene, representing each stage of the entire growth of a forest, we would be impressed by the work of the lowly lichens. Their contribution, as pioneers, in the preparation of rocky, stubborn soil, for the residence of the higher plant forms, is often forgotten.

The early colonists in North America fought the wilderness and conquered it for those who were to follow. Their work, dramatized by historians, has a glamorous appeal; yet what they did was of no greater importance than that of lichens, for there could have been no forest without a favorable type of soil.

Lichens, known to most of us as "gray things" which grow, with erratic, sometimes decorative, effect on trees and rocks, hold a position of absorbing interest in the plant kingdom and deserve from forest lovers more attention than they receive.

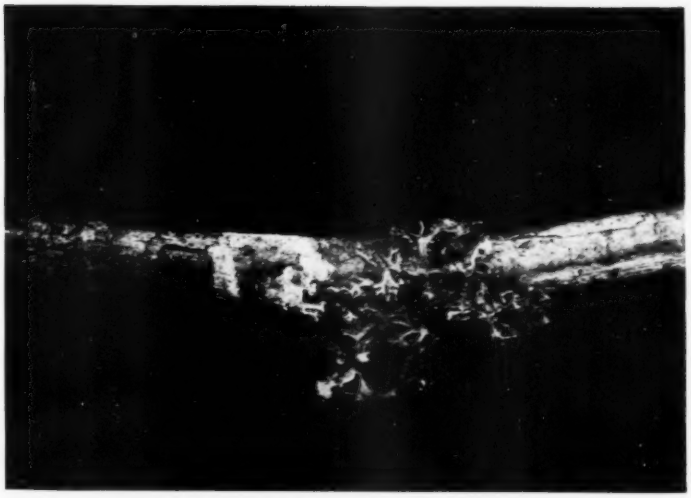
The disintegration of barren rocks to productive soil is aided by the growth of lichens, when, by attaching themselves by tiny rhizoids in microscopic fissures to the rock surface, they dissolve and reduce it to soil by the action of an acid they secrete. This action, which, in prehistoric periods aided the establishment of our forests, is observable at present in some portions of Minnesota, where lichens may be found growing on rocks that have become rotten to a depth of several inches.

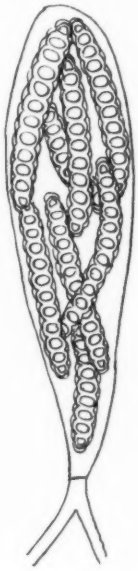
Penetrating deeper into the rock, the acid leads the way for the extension of the rhizoids, which push closely in its wake. As the surface is gradually changed to tiny soil particles, the lichens may decay, adding humus as a crowning achievement of their work. Moss spores descending in their parachutes upon such rich, unexploited soil become established, and are later superseded by ferns, shrubs, and finally, trees.

Lichens are paradoxes as well as pioneers. In their formation, two entirely different plants, as different from each other as the bat is from the buzzard, have formed a partnership which, while not always of mutual benefit, serves the purposes of reproduction. One of the members of this strange plant household is an alga, whose usual place of residence is in the water. The other partner is a thread-like fungus with definite tendencies toward land as a habitat. Both members of this plant household are so small that it is necessary to employ a microscope to see them individually, but in the forest, on trees and rocks they make a collective showing. They exhibit a variety of colors, but due to their general inconspicuous form they are too frequently overlooked by the forest stroller.

GYMNASIUMS OF THE FOREST—

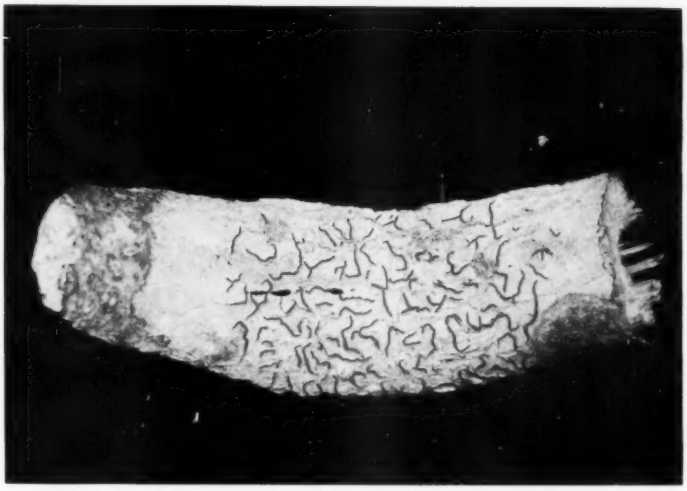
If each shield-shaped fruit of Theloschistes chrysophthalmus shown was as large as a college gym instead of four times smaller than it appears here, each one would be so full of dumbbells that the members would be crowded out! Note in drawing the consistent dumbbell shape of spores

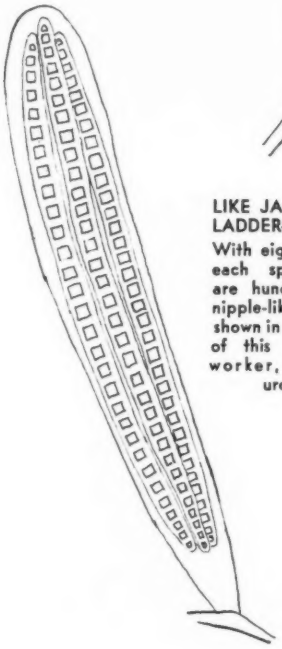




NATURE'S MIMICRY—

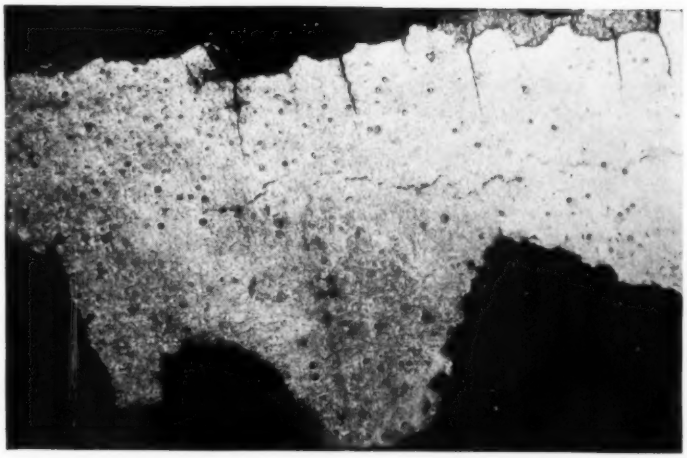
This lichen pioneer (Graphis scripta), is an odd fellow and occurs upon smooth-bark trees in a formation suggesting a colony of dormant larvae, — the larval resemblance attaching also to the spores





LIKE JACOB'S LADDER—

With eight "ladders" to each spore-sac, there are hundreds in every nipple-like projection shown in the photograph of this lowly forest worker, Conotrema urceolatum



Many lichens may be identified by their form and color. Others must be dissected and submitted to microscopic study.

Almost everyone is familiar with the Bertillion system employed by police for the identification of criminals by such characteristics as the color of the eyes, the thumb-lines, finger prints and the teeth. A similar system for identification is utilized by those who study the members of the lichen group. One common method of identification, either of (*Continuing on page* 288)

ASSOCIATION LAUNCHES FIRE PREVENTION CAMPAIGN

Members of Congress and Other Government Officials Join Conservationists in Opening Drive for Greater Public Support in Reducing Forest Fire Losses

STRIKING at the core of the country's Conservation Problem Number 1, the protection of its forest lands from devastation by fire, The American Forestry Association on the occasion of its 64th Annual Meeting at Washington, D. C., on March 22, launched a nation-wide drive for effective public action in the prevention of forest fires. At a dinner meeting attended by Secretary of Agriculture Henry A. Wallace, members of Congress and other government officials, and by representatives of the various states and conservation organizations, the Association opened its campaign by presenting for educational use throughout the nation its new forest fire prevention painting by the celebrated illustrator, James Montgomery Flagg. Early this summer more than a million posters will be reproduced from this painting by the federal Forest Service, and distributed with the cooperation of state forestry agencies, and conservation organizations. Later a million stamps will be struck off by the Association to further stimulate public participation in "stopping forest fires before they start."

HON. E. D. RIVERS
Governor of Georgia

As principal speakers at the dinner, which was presided over by James G. K. McClure, president of The American Forestry Association, Senator Robert A. Taft, of Ohio, and Governor E. D. Rivers, of Georgia, gave a graphic picture of the forest fire problem as it exists today and called upon the federal government, as well as the public, for increased participation in prevention activities.

"Forest fire protection lies at the very base of all other conservation efforts," said Senator Taft. "If we permit our forests to be destroyed, there is little use of trying to conserve wildlife, or in continuing our great flood prevention work. It is an activity which should stand first in conservation, just as our police and fire departments must stand first in the necessary services of city government.

"In view of this, the federal government's participation should be increased so that the entire area unprotected from forest fire can gradually be covered, and the authorization contained in the original Clarke-McNary law — $2,500,000 a year — should be increased even if it is necessary to do so at the expense of other

HON. ROBERT A. TAFT
Senator from Ohio

desirable but less essential work. There is no experiment about fire protection; we know it can be done, and is simply a matter of sufficient funds to carry through.

"We are planning to spend hundreds of millions of dollars on flood prevention in the United States. The cheapest kind of flood prevention consists of forest fire prevention and protection. A living forest holds back the rain on its leaves, in its underbrush, in the spongy soil which lies beneath it. It is a natural reservoir, without cost to anyone. But the result of forest fire destroys its use. The run-off from a burned area is greater than that from cutover areas of agricultural land, and we can well claim that a few million dollars spent in fire protection and prevention will more than repay itself in the lessened necessity for artificial reservoirs, and the reduced damage from river floods."

Courtesy Washington Evening Star

For outstanding heroism in saving the lives of forty CCC forest fire fighters during the tragic Blackwater fire on the Shoshone National Forest, Wyoming, in 1937, Forest Ranger Urban J. Post is being awarded the American Forest Fire Medal for Heroism at the 64th Annual Dinner of The American Forestry Association. Awarding the Medal is J. P. Kinney, chairman of the American Forest Fire Foundation. At right is James G. K. McClure, president of The American Forestry Association.

In spite of one of the finest national forest services in the world, the Senator declared, the year 1937 yielded 185,000 forest fires in the United States. More than 22,000,000 acres of land were burned over. "Even in some of the lumbering states," he said, "more timber has been burned than has been lumbered. In the national forests we have been planting approximately 155,000 acres of land with new trees, but the annual fire loss has been 287,000 acres. What is the use of planting these new forests which, according to present averages, will be largely burned over before they reach maturity? Certainly it is obvious that little progress in conservation can be expected until the forest fire problem is solved — and there is no doubt but that it can be solved if sufficient funds are made available for both protection and prevention."

After picturing the place of forests and forest management in the economic recovery of the South, Governor Rivers warned that little progress can be hoped for until this important resource is protected from fire. "Problems in forest production in the South are few," he said. "Yet so important is one of these — the problem of uncontrolled forest fires — that upon its successful solution hangs the entire future of the South as one of the great timber producing regions of the nation."

The magnitude of the South's problem becomes apparent, Governor Rivers stated, when it is realized that of the 22,000,000 acres burned over in the United States in 1937, ninety-seven per cent, or more than 21,000,000 acres, were in the twelve southern states. "At a time when economic conditions are so trying, it seems poor economy at best to permit the wanton destruction of such a valuable resource as the forest. Forest fires literally burn up thousands of jobs; and each job thus destroyed means one more additional name on the relief rolls."

Ninety-nine per cent of the forest fires in the South — which means more than ninety per cent of all forest fires in the nation — are man caused and therefore preventable, said the Governor. "This is an important consideration in the South's problem. From earliest historical records it is evident that fires have occurred for centuries in southern forests. The Indians burned, so did the early settlers — for various reasons. Now the rural populace appears to have inherited a peculiar desire to burn the woods — for reasons too numerous to mention.

"The great damage resulting from these fires is best illustrated by the naval stores region which comprises about 40,000,000 acres of some of the most productive pine land in the world. For the year 1936 almost as much pine timber was destroyed in this region as the new amount grown—at least seventy-five per cent of the mortality being caused by fire. This terrific destruction is doubly serious when it is realized that the net growth of timber is twenty per cent less than the total amount used by man. Thus it is evident that if the timber is being used more rapidly than it is being grown, a disastrous end to the forests in this section of the country is in sight. Only two remedies are available. The first is to curtail use of the forests — the second is to grow more timber. Obviously, the desirable action is to grow more timber. Fire prevention and protection is the answer, for I am assured that the net growth in the naval stores region could within a real- (*Continuing on page* 286)

BEECH

Fagus grandifolia, **Ehrhart**

BY G. H. COLLINGWOOD

Devereux Butcher

Open grown beech trees have a low wide spreading crown comprised of many long horizontal branches. The smooth tight fitting bark is silvery gray touched with irregular dark blotches and bands

BEECH is native from southern Canada, northern Michigan and eastern Wisconsin to the Atlantic, and south to eastern Texas and northern Florida. Preferring deep, rich, well-drained soils, it grows wherever moisture is in the upper layers. It attains largest size, however, in the rich, alluvial bottomlands of the Ohio and the lower Mississippi River valleys, and along the western slopes of the Southern Appalachian Mountains. Here trees with trunks over four feet in diameter reach heights of 120 feet and are clear for sixty to seventy feet.

The glossy, blue-green, straight-veined leaves are simple and alternate on the twigs. They are three to five inches long and rather coarsely serrate with a vein terminating in each tooth.

Each tree bears separate male and female flowers. These appear in early spring when the leaves are half grown; the yellow-green staminate ones being about an inch in diameter, hanging from

long stems, while the pistillate ones are usually in pairs covered with many pointed bracts and supported on a short hairy stem.

By early autumn the short stalked bur is ripe. Within, surrounded by a downy lining may be found two or three small triangular, highly polished, brown, sweet meated nuts. These edible nuts are responsible for the classical Latin name *fagus,* from the Greek, *phagus,* to eat; while *grandifolia* refers to the beautiful leaves. This tree reproduces by root sprouts as well as by seeds.

The smooth, close-fitting, blue-gray bark covers the trunk and branches like a skin. Seldom more than half an inch thick, it is frequently mottled with dark blotches and bands.

W. M. Harlow

The yellow-green staminate blooms appear when the leaves are still limp. Each leaf is three to five inches long with parallel veins terminating at the marginal teeth. The tapering bud is an inch long and polished brown.

Beech wood is light red in color, heavy, hard, strong, close grained, and difficult to split. A cubic foot when air dry weighs about forty-five pounds. It shrinks considerably in drying, is not durable when left in contact with the soil, but takes a high polish and wears well when subjected to friction under water. The wood is used for chairs and other furniture, flooring, railroad ties, woodenware, handles, novelties, and because of its clean odor for barrels and boxes in which to hold foods.

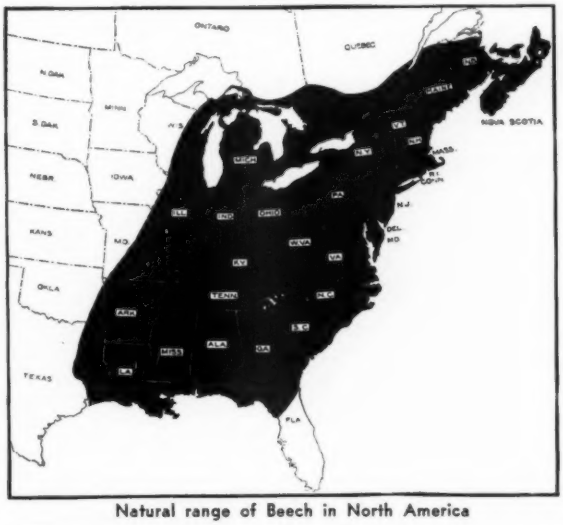
Roughly about eight and a half billion board feet of beech timber are growing in the United States, of which the bulk is in New England, New York, and Pennsylvania. Beech lumber produced in 1937 amounted to 133,181,000 board feet. Pennsylvania and West Virginia were the largest producers.

Of relatively slow growth, it may attain ages of 300 to 400 years. It is subject to several injurious insects and fungi, and the thin bark makes it an easy victim to ground fires.

W. M. Harlow

George J. Baetzhold

The shiny triangular nuts are encased in a small prickly bur



Natural range of Beech in North America

THE LURE OF THE CHATTAHOOCHE

(*Continued from page* 252)

The history of the Chattahoochee Forest is, in itself, a rival of fiction. In 1911, immediately after the Weeks Law had been passed in the Congress of the United States, the National Forest Reservation Commission approved the Savannah, the Georgia, and the Nantahala Purchase Units, and in 1912 the Cherokee Purchase Unit, which was extended across the Georgia line in 1924. The Savannah Unit was made a part of the Nantahala Forest in 1920 and the Georgia Unit and Cohutta extensions were added to the Cherokee National Forest in 1928. Until 1936, two great national forests extended from other states into Georgia. On July 9, of that year, additional acreage having been added from the Vogel Land Company and the Morse Brothers Lumber Company, the Chattahoochee National Forest of 561,555 acres was created by proclamation. The entire acreage within the purchase boundary is nearly one and one half millions of acres.

The fire died again and Arthur Woody did not try to suppress a yawn. I realized that the evening was close to an end. I knocked out my pipe against the rock wall of the fire place. When I stepped outside, the volume of wind had increased and was cold, but the sky was cloudless and the Milky Way resembled a path of white light across the heavens.

The stars had not yet gone when someone rapped on my door.

"Breakfast will be ready in twenty minutes."

From my window I could see the darkened outline of the Blue Ridge. The small electric bulb seemed yellow and inadequate against the first rose flush that blazoned the eastern heavens.

At breakfast Arthur outlined our program for the day. We would look at the recreational areas and *some* of his outstanding timber trees. We would cross by the old Cheese Factory at Tray Mountain, and invade the district of Ranger Nicholson to the east.

The sun had not made its appearance when we crossed Woody Gap. Below us—far below — with early morning mists pressed against its bosom, was Yahoola Valley. Across this gap, on a narrow trail almost a hundred years before had come a lean, lanky mountain lad from his home near the ranger station at Suches. This mountain boy, Joseph E. Brown, drove a pair of steers, which he traded for his tuition in school. Across this Gap to the outside world Joe Brown had gone to the honored seats of Governor of his state, United States Senator and the Chief Justice of the Supreme Court.

The day was short, but as full and overflowing as a cup of the gods. We saw Brasstown or Enotah Bald, highest peak in the state, almost 4,800 feet elevation, located in the heart of the national forest. We stopped to examine a number of recreational areas scattered throughout the forest. On those tiny public parks, picnic tables, drinking water, outdoor fireplaces and all sanitary facilities had been provided. Each park had some outstanding characteristic. Rabun Beach was on a deep, wide arm of Lake Rabun, with camp sites. At Lake Winfield Scott and Grassy Mountain, lakes had been constructed at approximately 3,000 feet above sea level, and stocked with rainbow and speckled trout. Many other recreational areas, like Chestatee Knoll and Warwoman Dell, were simple picnic sites in the forest.

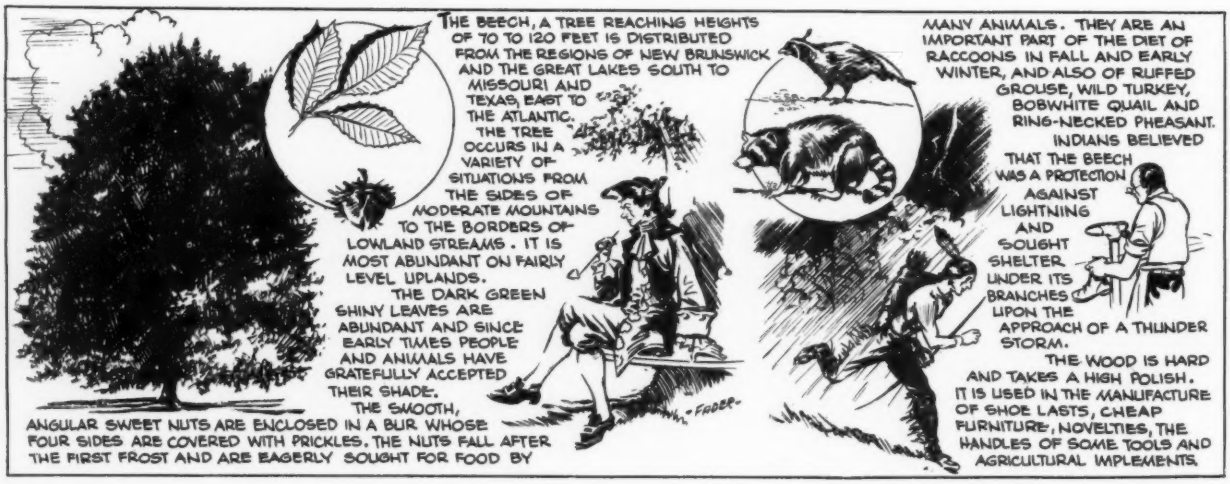
We saw Oglethorpe, where the Appalachian Trail came to an abrupt terminus, and Sosbe Cove, which claimed the best stand of poplar trees of any area its size in the United States. We saw Vogel State Park, Blue Ridge Lake, and in Fort Mountain State Park we examined ancient stone fortifications, whose origin is lost in the dimness of antiquity. I could well believe that I had seen timber stands whose predominant species of yellow poplar, oak, pine, hemlock and ash totaled some 700 millions of board feet. The ranger said that this estimated total did not include 300 million feet of chestnut which had fallen before the southward march of the Chestnut Blight.

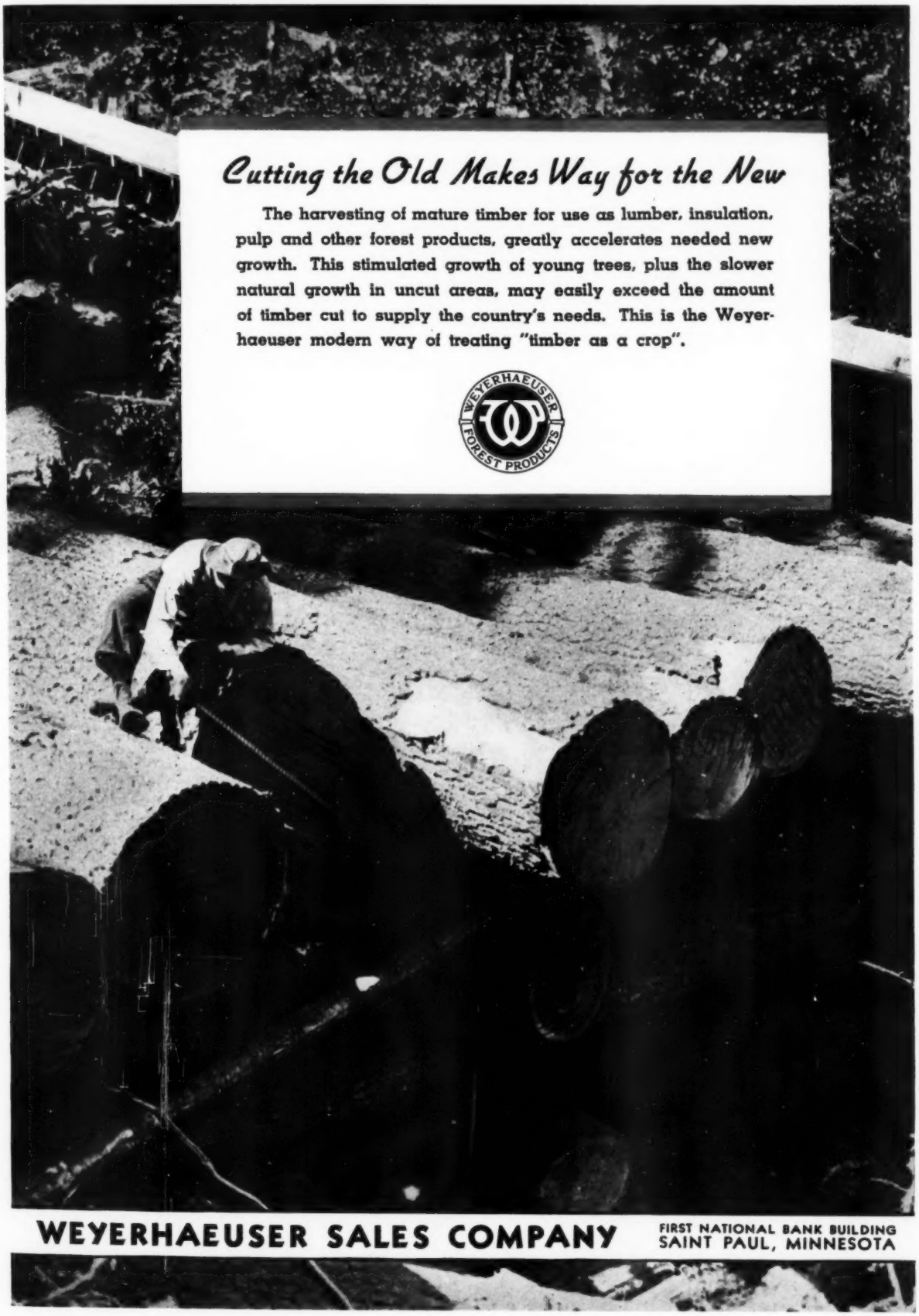
But the day finally came to an end, as all of those rare, perfect days, sun-lit and serene, will do. And now I stood at the breaking point of the gap. Somewhere far below I could hear the muffled thunder of a falling river. The air was cool and clean and sweet, the sky almost dark. I looked back across this wild, vast forested land that served so many needs of a people. Protection of the earth was one, that the streams might run unsoiled. Others were as an eternal source of timber, hunting, fishing, recreation for the timid and hardy alike—a wise program of a wise nation, touching everyone, with its roots buried deep into the lives and habits of 130 millions of Americans, with its ideals projected so far into the future that no one could prophesy its ultimate benefit to mankind. And as I turned down the ridge into the twilight, the words came back to me:

"I love Thy rocks and rills,
Thy woods and templed hills . . ."

and I knew that when my day was done, and when many other days had come and gone, the Chattahoochee National Forest would continue to stand as a monument to those far-sighted men and women who helped to shape the destiny of a people.

TREES AND THEIR USES—No. 41—BEECH


THE BEECH, A TREE REACHING HEIGHTS OF 70 TO 120 FEET IS DISTRIBUTED FROM THE REGIONS OF NEW BRUNSWICK AND THE GREAT LAKES SOUTH TO MISSOURI AND TEXAS, EAST TO THE ATLANTIC. THE TREE OCCURS IN A VARIETY OF SITUATIONS FROM THE SIDES OF MODERATE MOUNTAINS TO THE BORDERS OF LOWLAND STREAMS. IT IS MOST ABUNDANT ON FAIRLY LEVEL UPLANDS.
THE DARK GREEN SHINY LEAVES ARE ABUNDANT AND SINCE EARLY TIMES PEOPLE AND ANIMALS HAVE GRATEFULLY ACCEPTED THEIR SHADE.
THE SMOOTH, ANGULAR SWEET NUTS ARE ENCLOSED IN A BUR WHOSE FOUR SIDES ARE COVERED WITH PRICKLES. THE NUTS FALL AFTER THE FIRST FROST AND ARE EAGERLY SOUGHT FOR FOOD BY MANY ANIMALS. THEY ARE AN IMPORTANT PART OF THE DIET OF RACCOONS IN FALL AND EARLY WINTER, AND ALSO OF RUFFED GROUSE, WILD TURKEY, BOBWHITE QUAIL AND RING-NECKED PHEASANT.
INDIANS BELIEVED THAT THE BEECH WAS A PROTECTION AGAINST LIGHTNING AND SOUGHT SHELTER UNDER ITS BRANCHES UPON THE APPROACH OF A THUNDER STORM.
THE WOOD IS HARD AND TAKES A HIGH POLISH. IT IS USED IN THE MANUFACTURE OF SHOE LASTS, CHEAP FURNITURE, NOVELTIES, THE HANDLES OF SOME TOOLS AND AGRICULTURAL IMPLEMENTS.
-FRODER-


Cutting the Old Makes Way for the New
The harvesting of mature timber for use as lumber, insulation, pulp and other forest products, greatly accelerates needed new growth. This stimulated growth of young trees, plus the slower natural growth in uncut areas, may easily exceed the amount of timber cut to supply the country's needs. This is the Weyerhaeuser modern way of treating "timber as a crop".
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FOREST PRODUCTS
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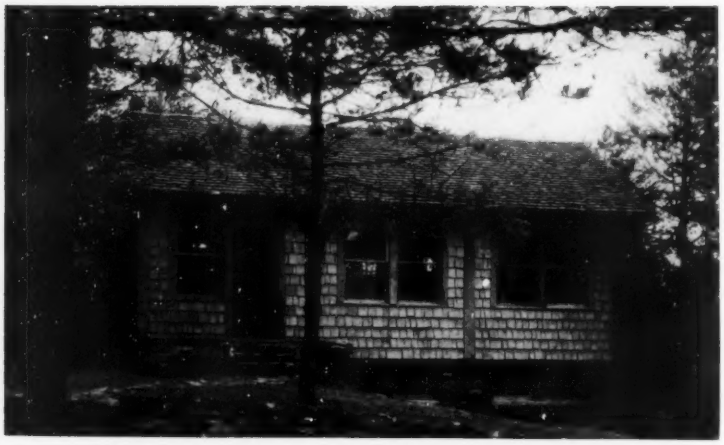

The shingle building fits perfectly into its forest environment

HAND-RIVEN SHINGLES-- A PIONEER ART REVIVED

By J. H. BUELL

OLD LOG CABINS in the mountains of North Carolina naturally belong with their surroundings. They were ruggedly made of materials grown in the forests which were cleared to make room for them, and were fashioned by an art which, knowing only necessity, still achieved the simple beauty so often associated with things perfectly serving the purpose for which they were intended.

The walls were of logs; the floors were of puncheon made from split poles smoothed off with an adz; and the roofs were covered with hand-riven shingles split from straight grained oak or chestnut. These old homes have literally grown out of the ground on which they stand, and possess a charm to be gained only by intimate connection between building and environment.

This charm of old mountain cabins was the dominant note chosen for the architecture of the working quarters erected on the Bent Creek Experimental Forest of the Appalachian Forest Experiment Station, near Asheville. The materials were almost entirely of native origin. The foundations were of field stones. The upright beams of the frame construction, used because house logs of the right dimensions are now scarce and hard to get, were hand hewn, and left exposed. The shingling of the side walls and roofs led to a revival of the pioneer art of making shingles by hand.

For the original group of buildings, and those that have been added to it, 115,000 shingles were used. Since a man can make about 500 shingles in a day, this has meant 230 days of work for mountaineers who had not forgotten the art.

For shingle making tall, straight grained chestnut trees are sought. They must be free from windshake—a separation of the wood along the layers that have grown during successive seasons, and caused by the stresses and strains set up by the movement of the tree in the wind. The shingle makers look for hollow butted trees because such trees are often free from windshake.

After the trees are felled, they are sawed into blocks of the proper length for shingles. Once this is done all work must proceed as rapidly as possible since moist wood splits much more easily than dry, and the blocks once exposed to the air quickly dry out. After sawing, the blocks are laid flat on the ground and split along radii into pieces shaped like cuts of pie. The splitting is done with a long-handled, single-bitted ax. When the first blow does not completely split the block, a hand-made mallet of hardwood, preferably dogwood, is used to drive the ax through. Next the pie-shaped pieces are split crosswise, or tangentially, into blocks the proper width for shingles.

The blocks are now ready for the shingle maker. He sits with one of them between his feet and, with a frow, splits it radially in two; then he splits each half radially in two, and so on until the shingles are of the proper thickness. For this work his feet are almost as important as his hands, for with them he dexterously holds the lower part of the piece he is splitting.

This word "frow" (or "froe") is as interesting as the tool itself. It is derived from an old provincial English adjective meaning "liable to break, crisp." The tool consists of a cleaving knife with a broad back and a wooden handle set at right angles to it in the same plane. A home-made wooden mallet is used to strike the back of the knife while it is held in position by the handle.

The shingles are now of the proper length, width and thickness, and there remains only the job of tapering their ends so that they will lie snugly on the roof and walls. This tapering is done with an ordinary draw knife, but the device which holds the shingle during the process is unusual. It is as home-made as the shingles themselves. The draw-horse, as it is called, consists of a piece of timber arranged at a slight angle with the horizontal end low enough for the operator to sit on the ground. A rectangular hole is made in this timber. Through it a second timber is thrust vertically, and hinged on an iron rod. A projection on the top half of this second timber serves as an upper jaw upon which pressure may be exerted by the operator, who puts his feet on a cross piece attached to the lower end of the timber. The shingle is held firmly between the upper jaw and the horizontal beam while it is being tapered. When both sides have been tapered the shingles are air dried for a few weeks.

The finished buildings, with the shingles for the side walls stained a weather-beaten grey, and those on the roofs a mossy brown, look as though they had been standing on the wooded slope for years. No wonder a visitor remarked "I thought you were putting up new buildings, not repairing old ones."

Shingle makers—the woodsman at left is splitting chestnut blocks for his companion at right who, with a "frow," tapers the shingles to their proper thickness

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President Roosevelt Comments on Forest-Park Situation

President Franklin D. Roosevelt, in a letter dated March 11 to James G. K. McClure, president of The American Forestry Association, gave expression to his view of conflicting problems now characterizing the administration of the national forests and national parks. Admitting that confusion of thought exists in dealing with the problems, the President said he felt that a part of the confusion "has been due to the fact that two separate bureaus of the government have been competing with each other for public favor in the recreational field."

Citing the fact that a number of states combine the management of forested recreational areas with non-forested playground facilities, the President said that the administration of forests and parks under one management by states raises the question if a similar policy should not be followed by the federal government. The whole subject, however, requires further study, he said, and intimated that later he may make a recommendation to Congress on the matter.

The President's letter was in reply to one addressed to him on March 3 by Mr. McClure, transmitting an appeal by The American Forestry Association for settlement of existing differences between the national Forest Service and Park Service. Mr. McClure wrote—

"Dear Mr. President:

"The jurisdictional conflicts which are characterizing the development and administration of the National Forests and National Parks have become a matter of deep concern to this Association because of their possible effect in preventing these two systems of federal reservations from rendering their greatest long-range service to the public.

"The Association has been an ardent advocate of both systems since their inception. It holds that each has its definite place and purpose and that adjustments of policies and boundaries which changing conditions may suggest should be determined solely by broad public interest.

"The present situation involving as it does frequent controversies between administrative agencies is due, we think, largely to the increased use of both systems for outdoor recreation. The result, however, is serving to confuse the primary objectives of the two systems and to jeopardize desirable processes of determining from time to time the types of resource management that will yield largest public benefits. Furthermore, bureau hostility appears to have reached a point that leaves much to be desired in the way of necessary coordination of policies and administration.

"The situation has been the subject of frequent discussion by the Directors of The American Forestry Association. They view it as one which makes urgently desirable a critical study of those federal lands adapted to primary management for parks, forests, forage and wildlife purposes in order to assure that these resources may be administered and developed along lines that will best meet local and national needs. To this end, our Board at its last meeting voted to appeal to you and to Congress for such a study.

"It is believed that the situation would be most speedily and amicably met by having the proposed study made by a non-governmental agency in order that no question of partiality might be raised. Such an agency naturally must be competent and must have public confidence. The Board believes that the National Academy of Sciences meets this requirement and it therefore suggests that it be asked to undertake such a study.

"The Board further believes that it would be in the interest of long-range progress to set aside controversial questions involving boundaries and jurisdictions until the study in question is completed and recommendations are available. This belief is predicated on the fact that the resources concerned would not thereby be jeopardized and that there is merit in awaiting impartial determination of issues involved.

"Our view in respect to this situation is more fully set forth in the attached editorial published in the March issue of the Association's magazine, AMERICAN FORESTS. May I bespeak for the Board and for the Association your earnest and sympathetic consideration of their desire to suggest a helpful and constructive course of remedial action?"

The President's letter follows in full.

"My dear Doctor McClure:

"Your letter of March 3 came duly to hand, and while I recognize the force of much that you say in your letter and in the printed article in the AMERICAN FORESTS Magazine, I am not quite ready to take action at this moment. The subject of forestry has long interested me, and I agree with you that there seems to be a good deal of confusion of thought in dealing with the problem. It is already more than thirty years ago since, as a Nation, we became aware of the rapid spoliation of our forest reserves and saw the necessity for reforestation if for no other reason than restoring the lumber industry; but I confess that not much progress has been made in those thirty years, apparently because of a confusion of ideas. Forests are valuable to man in a number of different ways; for example, much of our natural terrain should not be tilled because of the nature of the soil, the heavy rainfall, the steepness of the banks; and yet this same terrain is admirably suited for the growing of trees. In recent years we have recognized this so truly that we have classed as *submarginal*, lands which are unsuited for tilling and the growth of annual crops, with the expectation of converting this submarginal land into forest or grazing areas. Although we have made a start in this direction, the total progress has not been large when compared with the area of the country as a whole.

"European experience has clearly pointed out the way that forests operated in order to produce a sustained yield for lumbering or even for wood pulp should be managed, but here again, while this has been explained frequently, no great progress has been actually secured in our country.

"On the other hand, we have also a totally different kind of forested areas, such as the forests of rare or exotic trees which it is desirable to preserve in their natural splendor because they may be classed among the wonders of nature. I refer, for example, to the Giant Sequoias in Southern California, to the Sugar Pines in the same general area, to the Redwood Forests of the California Coast, and to the Douglas Fir of the Columbia River region; not overlooking in the east the Swamp Cypress of the Carolinas and some of the rare semi-tropical trees of the Everglades Park in Florida. In the case of all these varieties, with the possible exception of the Douglas Fir, it is too much to expect that we can cut and renew these forests on a yield basis. Apparently, Congress has decided that the only way of preserving these marvelous trees is by including these stands in the National Parks.

"There are still other kinds of forests which are of no great value for lumbering operations, nor even for wood pulp, but which have considerable charm in protecting wild life, stream valleys, and affording recreation to tired humanity. A number of the States of the Union have appropriately regarded this class of forest reservations as more particularly their function. Forests of this kind rarely measure up to the standard of national parks, but we have, for example, in New York State, the Adirondack forests, the Catskills forest reserve, and Bear Mountain Park,—all of which are important forested recreational areas. Obviously, too, those States having large cities have every reason to create such reservations, and yet, in the interest of economy of management in those States, it is common to combine the management of forested recreational areas with non-forested playground facilities. This perhaps raises a question whether, if it is desirable in the States to combine under one management forests and other park areas, the same policy should not be followed by the Federal Government. One answer to this is the size of the problem and the fact that there is a wide difference between forests which exist in order to produce a lumber crop on a continuous yield basis and those forests which exist simply in order to preserve intact rare varieties of trees,—trees which might become entirely extinct if they were not preserved.

"Under all the circumstances, I agree with you that the whole subject requires further study, and I shall, perhaps, make a recommendation to the Congress on the matter. I cannot help thinking that a part of the confusion of ideas has been due to the fact that two separate bureaus of the Government have been competing with each other for public favor in the recreational field.

"Sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT."

LET YOUR VACATION BEGIN AT THE ROAD'S END

In the mighty Sierra Wilderness of California

For the seventh consecutive year The American Forestry Association invites you to join one or more expeditions of its Trail Riders of the Wilderness—to get away from the beaten trail, to spend your vacation beyond the road's end. You will see Nature unmarred by man, enjoy solitudes where creation still holds its masterpieces. Spend days in the saddle, evenings around dreamy campfires, nights in restful sleep beneath the stars. Fish in swift streams, stalk wildlife in its native haunts. Five expeditions are planned for this summer.

No. 1—Flathead-Sun River Wilderness, Montana
July 3 to July 15.

No. 2—Sawtooth Wilderness, Idaho
July 18 to July 31.

No. 3—Gila Wilderness, New Mexico
August 1 to August 13.

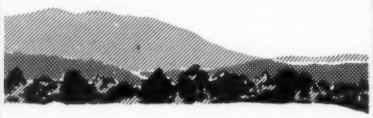
No. 4—Maroon Bells-Snowmass Wilderness, Colorado
August 3 to August 16.

No. 5—Kings River Wilderness, California
August 20 to September 1.

All expeditions are carefully organized with experienced guides, packers, wranglers and cooks. A physician is with each party; so are representatives of The American Forestry Association and the United States Forest Service. Both riding and pack horses are thoroughly trained to mountain travel. Costs run around $10 a day—no more than you would spend on any other vacation. So make this your year to ride with the Trail Riders of the Wilderness—an experience you will never forget. Write for reservations and detailed information concerning the expeditions.

THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street, N. W. Washington, D. C.



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Proprietor,
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Wallace and Ickes Agree on Kings Canyon Park

PUBLIC hearings on the proposed Kings Canyon-John Muir National Park in California which have continued over a month brought out public agreement between the Secretary of Agriculture and the Secretary of the Interior concerning the desirability of transferring some 454,600 acres, now administered as part of the Sequoia National Forest, to national park purposes. A wide diversity of opinion, however, was presented by representatives of the public and by members of the House Committee on Public Lands before which the hearings are being conducted.

Dealing primarily with H. R. 3794, as introduced by Representative Gearhart of California, Secretary Ickes opened the testimony on March 15 by quoting a letter addressed to him on February 8, 1939, in which Secretary Wallace stated, "The Department of Agriculture will approve creation of a national park within the general territory under discussion and will join with you in consideration of the specific boundaries described by proposed legislation in an effort to expedite the situation."

This statement completely reversed an opinion expressed in a letter from the Secretary of Agriculture dated June 6, 1938, in which he disapproved of a similar bill, H. R. 10436, introduced by Representative DeRouen in the 75th Congress.

Washington rumors to the effect that the change of attitude on the part of the Secretary of Agriculture and his associates had been occasioned by orders from the White House were not confirmed by the hearings. Chief Forester F. A. Silcox, however, appeared before the committee on March 17 and stated that the earlier unfavorable report of the Secretary of Agriculture was due to incomplete reports concerning the area of the proposed park which he had given the Secretary. "I am partly to blame," the Chief Forester stated. "In first presenting this case to the Secretary I did not give the Secretary everything, because I did not know the long historical background of this case. I had gone into it only to a certain degree. I later went back into the full record and laid it all before Secretary Wallace. * * * On the basis of the material which I do not think he had on his first letter — he agreed with the others that it should be a national park."

With reference to a proposal that the House Committee on Public Lands send a subcommittee to study the situation on the ground, Mr. Silcox stated in response to direct questions from members of the committee that "The proposed park has been endorsed by Secretaries of Agriculture and by three Chief Foresters, some of whom have visited the area and some of whom have not. I am inclined to believe that very little more factual material can be developed by further examination of the ground."

In conclusion, the Chief Forester, who has represented the Secretary of Agriculture throughout the entire series of hearings, stated, "Where an area like this area is outstanding scenically, and large enough to constitute a complete administrative unit, and the use is primarily recreational, I mean where timber is purely incidental, and there is practically no grazing — I, personally, would rather prefer to see the Park Service manage it. I would rather spend time from the Forest Service standpoint, on timber areas with recreation, grazing and all other uses incidental to the timber use."

Testimony presented by other witnesses revealed that the California State Legislature, acting on the letter from Secretary Wallace dated June 6, 1938, had resolved against the transfer of the area to the National Park Service. During the course of the hearings, however, a telegram was received from Governor Olson of California expressing his full approval of the proposed national park.

This statement brought forth from Representative Alfred J. Elliott, within whose district a large portion of the proposed national park lies, a declaration that seventy-five per cent of the people of the affected valley are opposed to the establishment of the additional national park area, and that they are supported in this belief by from sixty-five to eighty per cent of all the people of California. In defense of this assertion he referred to the opposition of 190 California organizations.

The establishment of the area as a national park, according to Representative Elliott, would lock up water rights capable of creating large volumes of cheap electric power. To this he added the people of his district are not satisfied with the further restriction to the grazing of cattle and sheep, which the creation of the park would imply; they do not feel that plans for flood control are properly worked out in the bill; and they insist that creation of the park would close a valuable recreation area against hunting.

The American Forestry Association urged that no action be taken on this or other bills involving boundaries or jurisdictions without "a critical study of those federal lands which are adapted to primary management for parks, forests, forage, and wildlife purposes, in order to assure that these resources may be administered and developed along lines that will best meet local and national needs."

As this goes to press the hearings remain open, and the committee has indicated that Charles G. Dunwoody, Washington representative of the California Chamber of Commerce, may complete his testimony in opposition to the proposed park area and answer certain charges made by Secretary Ickes to the effect that Mr. Dunwoody's activities have been encouraged and supported by certain power interests.

Florida Everglades Swept by Fire

In one of the most destructive fires in recent years, more than a million acres of land in the Florida Everglades were burned over late in March. A more accurate survey may increase this figure to two million acres, authorities investigating the tragedy stated.

At the same time officials expressed the opinion that the disaster was directly caused by extensive drainage of the Everglades and advocated that water be diverted from existing canals to reflood the area. Approximately 4,000,000 acres were drained by the canals leading out of Lake Okeechobee, it was stated.

Burning for more than three weeks, consuming forests, sawgrass and rich muck lands, the fire swept across the Tamiami Trail, popular tourist route and into the northern part of the proposed Everglades National Park. Birds and animals, for which the region was famous, have disappeared. Whether the water birds nesting in the Everglades, normally flooded at this time of the year, were consumed by the flames or escaped to other regions had not been determined.

After a hurried survey of the area, John H. Baker, director of the National Association of Audubon Societies, said: "Destruction of wildlife in the Everglades and Big Cypress sections of south Florida has been enormous, and is directly attributable to man-made drainage. Slow-moving animal life, such as raccoons and turtles, has been especially hard hit. The borders of the Tamiami Trail are littered with the dead bodies of animals of such descriptions. Throughout this vast area, vultures are the only birds that greet the eye.

"Throughout the muck land sections, little volcanoes of smoke emerge from the surface where the peaty soil is slowly burning underneath — burning down to coral bedrock. That topsoil was silted down through eons of time by the periodic natural overflow of Lake Okeechobee. In other sections whirling columns of dust and ashes dot the landscape, presaging the development, in the absence of heavy rains, of Florida's own dust bowl. . . .

"Leading citizens of Florida are fully aware of the scope of the economic tragedy which is now painfully evident as the result of unwise drainage, but the mass of the people in the south Florida coastal towns and cities are still astonishingly apathetic.

"The only sound solution would seem to be restoration of water to the land. This means stopping taking water off it, and especially stopping taking it out of Lake Okeechobee for any other purpose than controlled sluicing to maintain adequate water on the Everglades. The first and most important step would seem to be the immediate closing of the St. Lucie Canal. Those now fostering the idea of the so-called Trans-Florida Canal would do well to take heed at the plight of south Florida consequent upon canalization and drainage."

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The Taylor Fisherman's Barometer has made its debut on the spring fishing scene. This barometer takes advantage of the natural tendency of fish to seek water with high pressure, an announcement states. "When the atmospheric pressure is high, the fish are drawn to the surface waters, and in coming up develop a feeling of hunger which makes them snap at everything but the anchor. During low pressure periods, the opposite is true and the fish sulk in deep water.

"Theories and superstitions, too often practiced, as to when fish will bite, based on the direction of the wind, position of the clouds or the color of the water, have been proven to be scientifically incorrect. The barometer will always hold the secret."

A special dial, mounted on the face of the barometer, gives the sportsman quick, easy readings, so he can see "Fishing Least" or "Fishing Best" at a glance and act accordingly. Also invaluable as a weather forecaster, it is adjustable to any altitude, weighs but six ounces, and comes in a carrying case.

PENNSYLVANIA SPRAY TANKS

The Division of Protection in the Department of Forests and Waters of Pennsylvania, has recently purchased 950 five-gallon spray tanks for use by the forest fire fighting organizations. The new equipment will be distributed in six of the twenty-four forest districts.

The purpose is, with specially trained crews, to knock down the header of the fire with water rather than the customary method of back-firing now in use. Once the header is stopped, it will be relatively easy to extinguish the remainder of the fire. At the present time the primary use of spray tanks is to prevent back-fires escaping over the fire line and to extinguish burning stumps and snags. Although the department has been using spray tanks for a long period of time, the inauguration of this new system will be watched with interest.

PORTER PRUNER

After a probationary period in testing laboratory and out on actual jobs, a new, one-hand pruner, manufactured by H. K. Porter, Inc., appears on the market. It is primarily designed for the constant and exacting tasks of nursery, orchard, park and farm. In addition to the two sharp blades, common to all Porter pruners, it has several new features. The handles are so curved that the hand can readily hold the tool in the extreme open position and the design is such that the tool cannot pinch the hand at any point. The entire tool is drop-forged, heat-treated and precision-machined, with highly polished head.

TOURNAPULL DIRT MOVER

LeTourneau has just announced a machine that will handle more dirt faster and cheaper. It is the Tournapull, which combines the capacity of the largest self-loading unit—thirty cubic yards—with fast truck speeds under its own power. Loads of thirty yards can be handled at seventeen miles an hour, with ordinary ground conditions.

For the hauling units, either the thirty yard Tournatrailer or the thirty yard carryall scraper can be used with the 165 horsepower power unit. The former is a rear dump buggy, which must be loaded by shovel, dragline or elevating grader; the latter is a self-loading unit.

CENTRAL DITCH CHECK

Erosion of ditches can now be controlled by the installation of ditch checks, made by the Central Culvert Company. These checks are composed of one or more units, of sixteen gauge iron-copper alloy sheets. All units are given a heavy zinc spelter coating.

Installation is quick and easy—a maul being the only tool needed. Units are driven into the ground to the anchor plate in the bed or the ditch. In driving the checks into position the soil is not disturbed and no excavation is necessary.

TREE PRUNER

Seymour Smith & Sons have just announced a light-weight, all-steel pruner designed to make cuts which will heal over quickly. With it, it is easy to cut branches close to the trunk without leaving stubs. Cutting can be done with extreme points of blades. Large bearing surface around the center rivet is said to insure perfect cutting and unusual sturdiness. Special alloy steel forgings are carefully tempered and ground to keen, lasting cutting edges. The pruner is joined with a large steel rivet and is fitted with large, comfortable hardwood grips riveted to the shear.

"SOIL FLOW" TOOLS

Gardex, Inc., are offering two new garden tools—the garden lawn sweep and the steel hand broom. The lawn sweep is curved so that all twenty-two fingers touch the ground when it is swept across the lawn, giving full benefit of eighteen inch width. Made of special tempered spring steel, the company states the flexible fingers do not pull the roots of grass plants or damage the lawn. The steel hand broom is designed for getting into small, out-of-the-way places. The tool is used to clean leaves and twigs from flower beds, shrubbery, rock garden, and may also be used to loosen soil in hotbeds.

Wharton Answers Secretary Ickes

In an open letter to Secretary of the Interior Ickes, William P. Wharton, president of the National Parks Association, on April 10, branded the Secretary's recent attack on himself and the Association as being "contrary to the facts." Secretary Ickes early in April questioned the integrity of Mr. Wharton and the loyalty of the National Parks Association to the national parks. Mr. Wharton's letter follows, in part:

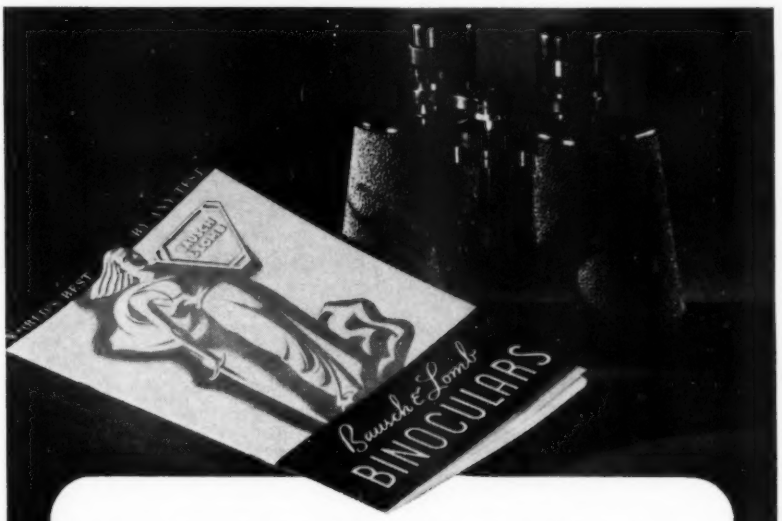
"It has come to my attention that you were quoted in the press as severely criticizing the National Parks Association, and incidentally myself as its president. Unfortunately, in the course of your remarks you made certain statements which are contrary to the facts. . . .

"You state that your understanding is that 'Mr. Wharton has "taken" in some 300 members, who apparently are not aware of the fact that he and his Washington representatives opposed the establishment of the Olympic National Park.' The fact is that the National Parks Association not only never opposed the park as such, but helped to establish it and urged preservation of its primeval character.

"You state that the National Parks Association is opposed to the proposed John Muir-Kings Canyon National Park. The fact is that, while it is true that it opposed the pending Gearhart Bill, the Association has always favored and still favors a national park which will preserve the great canyon of the Kings and Tehipite Valley, as well as the vast hinterland of rugged peaks beyond, in all their glorious primeval beauty. This the Gearhart Bill would not do. On the contrary, it would permit the construction of reservoirs for power and irrigation development on the floor of both these canyons. By a fiction it would nominally exclude these areas from the park, but at the same time make them the centers of park and recreational development inconsistent with any program to preserve the wilderness features of the area. Our association cannot favor such compromise making for the breakdown of park standards. . . .

"You are quoted as saying that the National Parks Association 'may be a stooge for lumber interests.' . . . I call to your attention the fact that twenty-two scientific and educational organizations are represented on our Board of Trustees, and that of the twenty or more members elected at large none, so far as I am aware, are connected with the lumber industry.

"Far from being disloyal to the national parks, we always have been, and still are, loyal to the high standards and ideals expressed by Muir, Mather and other leaders, and so well set forth in the statement of 'National Park Standards' by the Camp Fire Club of America. We are ready and anxious to cooperate with you in building and maintaining a National Park System which, under the protection of these high ideals, will be a permanent and distinctive institution, defended by Congress and the people for its inestimable contribution to the cultural life of America."



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IF THERE is any one thing concerning trees about which authorities are agreed it is that in order to live and grow, they must have in available form ten essential elements — carbon, oxygen, hydrogen, nitrogen, phosphorus, sulfur, potassium, calcium, magnesium and iron. Nature supplies these elements in sufficient degree to support tree growth if she is left alone, but when normal forces are upset by artificial development, it may become necessary to supply any deficiencies by artificial fertilization.

Those soil elements which are most readily exhausted and hence most commonly deficient in worn out soils are nitrogen, phosphorus and potassium. At the same time these are highly necessary to growth; so they have been named the critical elements. Without them plant life cannot exist.

Properly balanced organic matter is seldom economically available in sufficient quantities, and the use of manures and composts are often undesirable for esthetic reasons. The deficient minerals, therefore, are most economically supplied by the application of commercial fertilizers. These may contain a portion of organic ingredients but the largest part of the constituent materials usually consists of inorganic carriers of nitrogen, phosphoric acid and potash—the percentage of these materials being indicated by formulae such as 6-3-4, 10-3-3, 10-6-4, etc., the numbers indicating the available percentage in the order named.

Artificial fertilization for shade trees is often desirable in areas where the natural forest floor has been replaced by lawns or paving; where grades around trees have been changed and the roots smothered, exposed, or cut; where trees have been weakened by serious disease or insect attack or drought; where the soil has been compacted; or in general where the normal forest relationships have been appreciably modified. Pale leaves, thin foliage and short twigs often indicate the need for fertilization.

Although arborists are agreed on the necessity for fertilizing trees growing under artificial conditions, there exists a wide variety of expert opinion as to details of formulae, quantities and methods of application. This is not strange, for the widely varying conditions under which trees grow are bound to be reflected in their nutrient requirements.

Idealistically, the soil in which any tree or plant is growing should be carefully tested before a fertilizer to supply its particular deficiencies can be compounded. But practically, this is impossible, and we have to depend for the most part on a fertilizer which is broadly applicable. The tendency is toward fertilizers relatively high in nitrogen content and somewhat less in phosphoric acid and potash. Many investigators have found 10-8-6 and 10-6-4 formulae quite generally satisfactory for shade tree fertilizers although other formulae, too numerous to mention, have given favorable response. There is a great deal of ballyho in connection with special tree foods, however, and the tree owner should be sure that he is getting a dollar's worth of fertilizer units per dollar expended.

National Park Service

Fertilizers do the most good when well distributed underground. Electric or pneumatic soil augers are useful to prepare the feeding holes — or a crowbar will do

Specifications upon which the federal government buys mixed fertilizers call for the following: "Fertilizers: Mixed or prepared; for direct application to the soil; shall be uniform in composition and possess a mechanical condition to insure satisfactory drillability and shall comply with the manufacturer's guaranteed analysis; nitrogen to be derived, one-fourth from sodium nitrate, one-half from ammonium sulfate, one-fourth from organic sources, phosphoric acid from superphosphate, and potash from muriate of potash."

The amount of fertilizer given any tree should vary with the size and condition of the tree, its environment, the season, available moisture, etc. Various formulae and rules-of-thumb have been worked out by various investigators with no general agreement reached, but many seeming to have had a fair degree of success.

If we consider an elm tree eighty feet in height, a branch spread of sixty feet, and a breast-high diameter of thirty inches, various formulae will work out to give the tree from thirty to 234 pounds of fertilizer. It would appear that many types and amounts of fertilizer will benefit a tree to some extent and that it is rather difficult to over-fertilize—at least under normal conditions.

The basic rule-of-thumb which the writer has found reasonably satisfactory is to use three pounds of a 10-6-4 fertilizer to each inch of trunk diameter breast-high—varying the amount upward or downward occasionally as conditions seem to warrant.

Early methods of fertilizing trees were based on surface or broadcast applications of manures or prepared fertilizers.

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"The April issue of AMERICAN FORESTS is dedicated to the creation of such a will. If its pages, mirroring repellent destruction of beauty and wealth and living things, succeed in burning rebellion in the breasts of some of our people, its publication will be not in vain. America needs a rebellion of consciousness to bring to life a public will to stop forest fires.

"That every copy of the April issue may serve this end is our sincere hope. Make it a circulating hammer for the forging of that public will to prevent and control forest fires without which there can be no sure or lasting preservation of those natural heritages that sustain American life."—Ovid Butler, Editor

YOU CAN HELP

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This was not satisfactory as certain ingredients failed to reach the feeding roots because of inadequate movement through the soil. Much of the value to the tree was absorbed by grass and other plants.

Attempts were also made to fertilize trees by trenching beneath the outer branch spread and replacing the removed soil with a rich, composted or fertilized soil. This method supplied fertilizer to only a small portion of the root system—resulted in many cut roots—was expensive and unsightly. We hear little of trench feeding today.

Fertilization practice took a real step forward when someone introduced the punch-bar system, as it is known. This involves drilling a large number of holes in the root area with a crowbar, soil auger or power drill—introducing small amounts of fertilizer in each hole—and back-filling the holes with soil or compost. This method is still the most satisfactory for the small operator or home owner since no special equipment is needed.

Various other techniques of applying fertilizer to trees are in use today, some of which employ air or water pressure to assure adequate distribution underground. One of the best systems involves the use of both air and water. Compressed air is used to drill the fertilizing holes, fracture the soil and blow in the fertilizer. If the soil is dry, water is introduced to make a part of the fertilizer immediately available to the tree.

If you have only a few trees to fertilize and wish to do it yourself—use the punch bar method by all means—but if you plan to have a commercial organization fertilize your trees, investigate the pressure systems for they are very much worth while.

Most any season is satisfactory for fertilizing trees but there is no time better than this month.

Holes for the fertilizer should be drilled a foot or two apart—the closer the better—and approximately a foot deep in the entire area beneath the foliage and for a little distance beyond. Place a double handful of fertilizer in each hole and fill with soil or humus, being careful not to spill the fertilizer on the grass as it may be burned. In fine lawn areas it is good judgment to lift a spot of sod before drilling the hole and replace it after backfilling. It is well to complete the operation by soaking the entire area thoroughly—especially if the soil is dry.

If a fertilizer is chosen from a reliable manufacturer, applied properly in reasonable amounts, your trees will be healthier and better able to resist drought and many insect and disease pests.

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ANIMAL OUTLAWS, by Gid Graham. Published by the author, Collinsville, Oklahoma. 236 pages. Illustrated. Price $2.50.

A collection of true stories about wild animals and their capture, in which the intrepid courage of the hunted is dramatically portrayed in a series of fascinating chapters. The author, Gid Graham, who served six years as State Senator of Oklahoma and who is noted throughout the Southwest for his interest and work in wildlife conservation, offers these fascinating accounts of the struggles of wild animals for life and liberty in the hope they will inspire greater efforts for their protection.

LILIES FOR AMERICAN GARDENS, by George L. Slate. Charles Scribner's Sons, New York City. 258 pages. Illustrated. Price $3.50.

The first comprehensive, thoroughly American book covering the cultivation of these fascinating plants. The author — a foremost authority — describes over 280 species, varieties and hybrids, and line drawings and beautiful photographs embellish his text.

THE ENCYCLOPEDIA OF FURNITURE, by Joseph Aronson. Crown Publishers, New York City. 202 pages. Illustrated. Price $3.00.

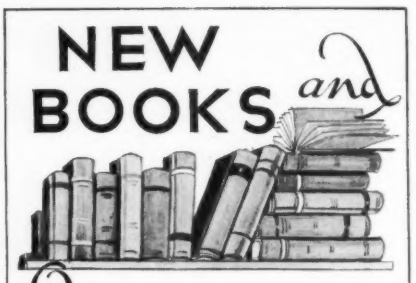
An encyclopedia indeed, which might well be called a *pictorial* encyclopedia for the sweeping text, covering style and design, antiques and reproductions, fabrics and woods, construction and architecture, designers and cabinet-makers is illustrated with over one thousand authentic photographs and drawings covering the detailed development of furniture from the very beginning to the present day. Standard for purposes of research, it is also a book to delight.

LESSONS IN KILN-DRYING, by Harry D. Tiemann. Southern Lumberman, Nashville, Tenn. 110 pages. Illustrated. Price $2.00.

A complete course—set up as thirty-one lessons—covering the technical phases of the behavior of wood, and of commercial problems involved in kiln drying. It is a book of value and definite appeal to wood users and manufacturers.

POEMS OF TREES, compiled and edited by Wightman F. Melton. Volume VII of the Sidney Lanier Series. Curtiss Printing Company, Atlanta, Georgia. 234 pages. Price $2.00.

Volume I of the Sidney Lanier Memorials was published in December, 1932. It held sixty-five pages, with contributions from seventy-six authors. This volume, published six years later, contains 234 pages, in which 176 authors representing forty-three states appear. This work is not a regular anthology but a memorial series of poems on trees, dedicated to honor Sidney Lanier, distinguished American poet, who knew trees and greatly loved them.



A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request. Books on this list—as well as other books—may be purchased at a discount of ten per cent from published prices if they are ordered through the Association.

A POLITICAL HISTORY OF THE CHEROKEE NATION, by Morris L. Wardell. University of Oklahoma Press, Norman, Oklahoma. 383 pages. Illustrated. Price $3.50.

The author, Professor of History at the University of Oklahoma and already a recognized authority and writer on Indian affairs, presents in this book the colorful history of the Cherokee Nation from the thirties of the past century, after the first removal treaty was in effect, until the termination of tribal government and emergence of the State of Oklahoma. Professor Wardell well says that the passing of the Cherokee Nation as a political unit is not without compensation, for its citizens "became members of a commonwealth that represents an amalgamation of institutions which afford a background rich in tradition, folklore, and history. The Cherokee Nation, in a manner, still lives." This history of the Cherokees, one of the Five Civilized Tribes of Indians, holds particular interest for the student of American political development.

WILDLIFE IN THE SOUTHWEST, by Orem Arnold. Published by Banks Upshaw and Company, Dallas, Texas. Illustrated. 274 pages. Price $1.75.

A vicious looking beast that spits blood from its eyes, a plant whose roots grow upward, a bird that eats rattlesnakes and chases golf balls, an animal no larger than a cat whose fifteen newborn babies will not fill a teaspoon are just a few of the intriguing "Southwesterners" presented in this book. Here is fascinating lore of the outdoors, packed with facts and adventure interest, though not "scientific" or statistical in a pedagogical sense. Offered as a non-technical volume for readers ten to twenty years of age.

Migratory Birds Convention Act, Department of Mines and Resources, Ottawa, Canada.

Site as a Factor in Silviculture, by J. W. B. Sisam. Department of Mines and Resources, Ottawa, Canada.

Lake Management Reports, by David H. Thompson and George W. Bennett, Illinois Natural History Survey, Urbana, Ills.

Woody Plants for Landscape Use in California, by Harry W. Shepherd—published by the California Agricultural Extension Service, Berkeley, Calif., as Circular No. 109

Southern Idaho Timber Protective Association—Annual Report, 1937—Boise, Idaho.

Forest Statistics for Eastern Oregon and Eastern Washington — from inventory phase of Forest Survey. No. 25 Forest Research Notes, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Forest Resources of Northeastern Florida—Forest Survey report, by U. S. Forest Service, Dept. of Agr. Misc. Pub. No. 313. Supt. of Doc., Washington, D. C. Price 20 cents.

Methods of Predicting Growth of Forest Stands—Forest Survey of the Lake States. Ec. Notes No. 9, Lake States For. Exp. Station, University Farm, St. Paul, Minn.

Forest Statistics, Idaho County, Idaho. Forest Survey Release No. 15, Northern Rocky Mountain For. and Range Exp. Sta., Missoula, Montana.

Forest Resources of Southeast Oklahoma, Forest Survey Release No. 37, and *Forest Resources in the Longleaf Pine Region of Mississippi and East Louisiana,* by E. B. Faulks, Forest Survey Release No. 39, both from Southern Forest Exp. Sta., New Orleans, La.

Lumber Consumption Trends in the Furniture Industry, by R. P. A. Johnson. Progress Report of the Forest Survey, Forest Products Lab., Madison, Wisconsin.

Research Results in Southern Forestry, Occasional Paper No. 77, Southern For. Exp. Sta., New Orleans, La.

Advances in Renewable Resources Program of Illinois, by Theodore H. Frison. Illinois State Natural History Survey, Urbana, Ill.

Lumber Distribution and Consumption for 1936, Compiled by R. V. Reynolds and A. H. Pierson, Forest Research Project Report No. 1, Forest Service, U. S. Dept. of Agr., Washington, D. C.

The Forest Products Laboratory—a brief account of its work and aims. Forest Service of the U. S. Dept. of Agriculture, Misc. Publication No. 306. Superintendent of Documents, Washington, D. C., 15 cents.

Arbor Day—State of Alabama, 1938. State Commission of Forestry, Spec. Pub. 14. Montgomery, Alabama.

Tree Planting—published by the Prairie States Forestry Project, Forest Service, U. S. Dept. of Agr., Washington, D. C.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: Is Brazil an important forest country and does it produce any considerable amount of pine lumber? How does it compare with the United States? —J. S., Delaware.

ANSWER: Brazil has over thirteen per cent of the world's forest resources, as compared with nine per cent in the United States. Brazil's annual production of pine lumber as recently reported is about 250,000,000 board feet, while the softwood production of the United States in 1937 exceeded nine billion board feet. This was thirty-six times the average cut in Brazil.

QUESTION: Do trees shed their bark?—A. M., New York.

ANSWER: Yes, but not necessarily each year as in the case of leaves. The growing cells of a tree, which constitute a thin sheath between the wood and the bark are of two kinds—wood cambium and cork cambium. During the growing season the cork cambium cells continually divide and add to the layer of bark in a manner similar to but usually more slowly than the formation of wood by the inner cells of the wood cambium. Accordingly, with the aid of a hand lens one may observe annual rings or layers of bark which resemble the more easily visible annual growth rings in the wood.

The annual rings or growth layers of white birch bark are easily seen, but they are shed scarcely more apparently than on the trunks of black cherry, sycamore, red cedar, shag bark hickory, or even white oak. Such trees shed or sluff off the annual accumulation of bark more or less regularly, and therefore have thin bark.

The bark of other trees is more tenacious and in some like the California redwood and the Douglas fir may become one or two feet thick.

QUESTION: Can you tell me if the soil and climatic conditions near Georgetown, South Carolina, are suitable for growing tung trees?—S. R. R., New Jersey.

ANSWER: Georgetown, South Carolina, is considerably north of the areas where tung trees are being commercially grown, but a successful planting is reported at Pee Dee Experiment Station, Florence, South Carolina. Before investing in any plantings of these trees one should communicate with the Bureau of Chemistry and Soils and the Bureau of Plant Industry of the U. S. Department of Agriculture in Washington, D. C.

QUESTION: How does wood compare with coal as a fuel? —J. A. F., Virginia.

ANSWER: A cord of hardwood such as hickory, oak, beech, or hard maple when properly dried for nine months or a year will produce about the same heat as a ton of hard coal. Species like shortleaf pine, Douglas fir, sycamore, and soft maple will require about one and one-half cords, while for still lighter woods as cedar, spruce, white pine, and cottonwood two cords are needed to equal a ton of hard coal.

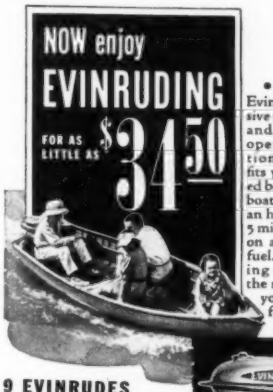
QUESTION: Why is the bark of the canoe birch white?—L. A. H., Virginia.

ANSWER: The bark cells contain a white substance without odor or taste which sweats out of the rind or can be extracted in boiling alcohol. It is known as betulin or birch camphor.

QUESTION: I have a couple of ranches in the sand hill district north of the Loup River at Burwell, Nebraska. The land is very productive of grass, and the Calamus River, fed by millions of springs, runs through the property. I am anxious to know the best trees to plant along such streams to afford game covering, benefit the river banks, and stop the small amount of erosion. I am also anxious to put out trees that will afford wind protection and shade, and have planted cottonwood, pine, and Chinese elm. This is a country that has only twenty to thirty inches of moisture, and the average is usually around twenty-five; but it has been especially good this year. — D. A. W., Michigan.

ANSWER: The common cottonwood, *Populus deltoides virginiana*, found along most of the rivers and streams in the Great Plains region, and the common willow are both recommended for planting along the stream borders. Cottonwood planting stock can be obtained by selecting young seedlings along the banks and sand bars of local streams and transplanting them in the late fall or early spring before growth starts.

For windbreak and shade tree purposes, cottonwood, Chinese elm, hackberry, American elm, green ash, red cedar, and ponderosa, Austrian and Scotch pine are recommended. Supplementing these to serve as wind barriers along the ground under the taller trees such shrubby growing plants as Russian olive, chokecherry, wild plum, and caragana are recommended. These species are particularly valuable for game in that they afford both cover and food for upland game birds. The same is true of the common red cedar, *Juniperus virginiana*, which has been unsuccessfully planted in this region.



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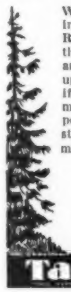

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FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

The Second Deficiency Appropriation bill, which passed the Senate on April 17, will increase the appropriation for Dutch elm disease eradication by $100,000 for the remainder of the present fiscal year if the bill is approved in conference. The increase will augment the $378,489 now available. Previous approval by the Bureau of the Budget of $200,000 was voted down in the House on March 22.

No increases of forestry or other conservation items were included in the Agricultural Appropriation bill, H. R. 5269, as passed by the House on March 28. The pest control program of the Bureau of Entomology and Plant Quarantine was thrown into chaos when the House on separate points of order ruled out paragraphs which would have appropriated $100,000 to Dutch elm disease eradication, $275,000 to gypsy and brown-tail moth control, $160,460 to Mexican fruit fly control and $13,487 to citrus canker eradication. Before the bill was considered by the subcommittee on appropriations for agriculture and forestry, Senator Barbour of New Jersey announced his intention to restore the language for Dutch elm disease eradication to provide $678,489 and that for gypsy and brown-tail moth control to $375,000. The latter amount was approved by the Bureau of the Budget, but the former is $100,000 short of the Bureau's recommendation.

The American Forestry Association is leading a nation-wide request that the Senate amend the bill by increasing the appropriation for cooperative forest fire prevention under the Clarke-McNary Act to add $500,000 and bring this item to $2,500,000 as authorized in the law.

Other announced amendments include one by Senator Wylie of Wisconsin to increase the appropriation for the Forest Products Laboratory at Madison from $628,361 to $1,000,000; one by Senator Wheeler of Montana to increase the item for Forest Research at the several forest experiment stations from $593,403 to $623,403 and earmark $58,350 for the Northern Rocky Mountain Forest Experiment Station; one by Senator Guffey of Pennsylvania to increase the appropriation for Investigations in Forest Economics from $121,295 to $139,295; while Senator Clark of Idaho would increase the support for Range Research from $225,935 to $250,935, and also that for studies of Forest Influences from $139,152 to $199,152.

The Interior Appropriation bill, H. R. 4852, was passed by the Senate on April 17. The unusual proviso in connection with the $89,400 to be appropriated for the maintenance and operation of the Great Smoky Mountain National Park that "no part of this appropriation shall be available for the payment of the present superintendent" of the park was rejected by a vote of 31 to 28, after extensive debate. This is a continuation of efforts by Senator McKellar of Tennessee to force the transfer or dismissal of Superintendent J. Ross Eakin. Other major changes in the bill include an increase from $126,735 to $131,735 for the Sequoia National Park in California and the addition of $1,000,000 to provide $5,000,000 for continuing the construction of the Blue Ridge and Natchez-Trace Parkways in Virginia, North Carolina, Tennessee, Alabama, and Mississippi. The hearings before the Senate subcommittee brought out that the Blue Ridge Parkway in Virginia and North Carolina will extend 483 miles at an estimated final cost of $35,000,000.

According to testimony concerning recently announced plans to charge entrance fees to all national parks and monuments and for the use of such existing parkways as the Skyline Drive in the Shenandoah National Park in Virginia, the total fees collected last year amounted to $1,508,126.61. This is equivalent to about sixty per cent of the cost of operating and maintaining the parks. The new schedule of fees is expected to bring the total income to more than $2,000,000.

The bill also includes an amendment to appropriate $1,070,000 for the purchase of reindeer, abattoirs, cold-storage plants and other equipment from the Loman Brothers in Alaska.

One step toward continued authorization for Congress to make appropriations for white pine blister rust control and giving permission for federal control work on privately owned lands adjoining federal lands was made on April 17 when the House passed H. R. 3406.

Following passage and approval of the Government Reorganization bill, H. R. 4425, on March 19, an announcement was made that initial plans for reorganizing the several departments will be submitted by the department heads to the President on April 25. There has been no authoritative indication concerning these plans.

Continuation of the Joint Committee on Forestry until April 1, 1940, was authorized by passage of H. Con. Res. 11 on March 31, 1939, and a few days later the committee reelected Senator Bankhead of Alabama as chairman and Representative Fulmer of South Carolina as vice-chairman. On April 17, Senator Bankhead introduced S. Con. Res. 13 to add $15,000 to the $10,000 previously provided for the work of this committee. No future hearings have been announced.

CONSERVATION CALENDAR

Important Bills in Congress With Action March 11-April 12, 1939

BILLS ENACTED

H. R. 2868—TAYLOR, Colorado—First Deficiency Appropriation bill. Passed House January 23, 1939. Passed Senate February 6, 1939. Signed by the President March 15, 1939. Public Law No. 7.

H. R. 3743—WOODRUM—Independent Offices Appropriation bill. Appropriating $1,898,512,769 to operate independent government agencies for the year beginning July 1, 1939. Passed House February 8, 1939. Passed Senate February 22, 1939. Signed by the President March 16, 1939. Public Law No. 8.

H. R. 4425—COCHRAN—To provide for reorganizing agencies of the Government. Passed House March 8, 1939. Passed Senate March 22, 1939. Signed by the President April 3, 1939. Public Law No. 19.

H. Con. Res. 11—To continue the Joint Committee on Forestry through the 76th Congress. Passed House March 27, 1939. Agreed to in Senate March 31, 1939.

H. J. Res. 246—TAYLOR, Colorado—Making a further additional appropriation for work relief and relief for the fiscal year ending June 30, 1939. Passed House March 31, 1939. Passed Senate April 11, 1939. Presented to the President for signature April 12, 1939.

APPROPRIATIONS

H. J. Res. 220—CASE, South Dakota (S. J. Res. 98—MURRAY)—To make available until June 30, 1940, the 1938 appropriation for water conservation and utilization projects in the Great Plains and arid and semi-arid areas. Introduced March 22, 1939. Referred to the Committee on Appropriations.

H. R. 4852—TAYLOR, Colorado—Making appropriations for the Department of the Interior for the fiscal year ending June 30, 1940. Passed House March 20, 1939. Reported with amendments (Report No. 282) by the Committee on Appropriations April 17, 1939.

H. R. 5219—TAYLOR, Colorado—Second Deficiency Appropriation bill. Reported by the House Committee on Appropriations (Report No. 260) and passed by the House March 22, 1939. Reported with amendments (Report No. 257) by the Senate Committee on Appropriations April 7, 1939. Under consideration by the Senate.

H. R. 5269—TAYLOR, Colorado—Making appropriations for the Department of Agriculture and for the Farm Credit Administration for the fiscal year ending June 30, 1940. Reported from the House Committee on Appropriations (Report No. 279) March 23, 1939. Passed House March 28, 1939. Referred to the Senate Committee on Appropriations March 31, 1939.

CONSERVATION

S. 1492—HAYDEN—To provide for a five-year building program for the United States Bureau of Fisheries. Introduced February 20, 1939. Referred to the Committee on Commerce.

NATIONAL FOREST

H. R. 5404—PIERCE, Oregon—To extend the provisions of the Forest Exchange Act, as amended, to certain lands so that they may become part of the Ochoco National Forest, Oregon. Introduced March 28, 1939. Referred to the Committee on Agriculture.

NATIONAL PARKS

H. R. 5446—SMITH, Washington—To authorize the acquisition, rehabilitation, and operation of the facilities for the public in the Olympic National Park in the State of Washington. Introduced March 30, 1939. Referred to the Committee on the Public Lands.

H. R. 5502—VOORHIS, California—To authorize the Secretary of the Interior to purchase, construct, maintain, and operate hotels and lodges for public accommodations in national parks and monuments. Introduced April 3, 1939, and referred to the Committee on the Public Lands.

WATER AND STREAM CONTROL

S. 1802—WHEELER—Authorizing construction of water conservation and utilization projects in the Great Plains and arid and semi-arid areas of the United States. Introduced March 14, 1939. Referred to the Committee on Irrigation and Reclamation.

WILDLIFE

H. R. 5179—IGLESIAS—To extend the provisions of the act entitled "An Act to provide that the United States shall aid the States in wildlife restoration projects, and for other purposes," approved September 2, 1937. Introduced March 21, 1939. Referred to the Committee on Agriculture.

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Fire Prevention Campaign

(*Continued from page* 267)

tively few years be at least doubled if fire is kept out of the woods."

That the people of the South want fire protection is evidenced by the fact that foresters recently stated that 23,000,000 acres of additional forest land in the South could be placed under organized fire protection *at once* if funds were available, Governor Rivers pointed out. As a further example, he cited the action of the General Assembly in Georgia in recently passing an enabling act to legalize a constitutional amendment ratified by the people by a vote of four to one to permit counties to levy a special tax for county-wide forest fire protection.

"Participation by the federal government in financing cooperative fire protection in the several states has been disappointing," he concluded. "Not only is $2,500,000, the present amount now authorized by existing legislation, far too small an amount for the federal government's part in financing nation-wide fire prevention and protection which, I understand, will cost slightly more than $18,000,000, but the Congress has never yet appropriated the full $2,500,000 as now authorized by the Clarke-McNary law. I earnestly hope that the efforts now being made by The American Forestry Association to wipe out forest fire will be one hundred per cent successful — for in order for forestry to assume the important place which it is capable of in solving the economic problems of the South, forest fires must be and shall be wiped out."

Another outstanding feature of the dinner meeting was the first awards of the American Forest Fire Medal for Heroism. The purpose and historical background of this medal, which pays tribute for outstanding valor in fighting forest fire, and the story of the first awards, were told in the April issue of AMERICAN FORESTS.

In addition to Secretary Wallace, Senator Taft and Governor Rivers, high public officials attending the dinner included Associate Justice Stanley Reed, Ambassador Hugh R. Wilson, and Senators John H. Bankhead of Alabama, Prentiss M. Brown of Michigan, William J. Bulow of South Dakota, D. Work Clark of Idaho, and Richard B. Russell, Jr., of Georgia; Representatives Homer D. Angell of Oregon, Frank W. Boykin of Alabama, Fred Bradley of Michigan, Ralph C. Brewster of Maine, Albert E. Carter of California, John M. Coffee of Washington, William M. Colmer of Mississippi, William Ditter of Pennsylvania, Aaron L. Ford of Mississippi, Hampton P. Fulmer of South Carolina, Willis B. Gibbs of Georgia, Frank E. Hook of Michigan, Frank Horton of Wyoming, Warren G. Magnuson of Washington, Earl C. Michener of Michigan, James W. Mott of Oregon, Martin F. Smith of Washington, John M. Vorys of Ohio, Zebulon Weaver of North Carolina, Dudley A. White of Ohio, William M. Whittington of Mississippi, George S. Williams of Delaware, Roy O. Woodruff of Michigan, and Marvin Jones of Texas.

Other notables attending were Leander McCormick-Goodhart of the British Embassy; Dr. Cloyd Heck Marvin, president of George Washington University; Brigadier General George P. Tyner; Colonel John Thomas Taylor, of the American Legion; and James Montgomery Flagg, famous illustrator.

Whose River Is It?

(*Continued from page* 260)

diversion canal. Both structures are virtually completed, and Mr. Schacht is unwilling to abandon his original plan of piping the Middle Branch to the South Branch. The Department of Conservation is likewise unwilling to waive its objections and allow the project to be completed.

The grave significance of this situation does not manifest itself in any great degree as far as the Middle Branch of the Ontonagon is concerned. It is entirely within the bounds of possibility that Mr. Schacht is right — that the dam and diversion canal will not destroy the river or its scenic beauty. If this is true — that the man-made lake will store enough water to keep an even flow below Bond Falls —beside filling the diversion canal—then aquatic life in the Middle Branch stands in no jeopardy of extinction and the esthetic beauty of the stream, which conservationists ardently wish to protect, will remain comparatively unimpaired.

Suppose, on the other hand, that all Mr. Schacht promises does not come true. In that case, but six miles of the Middle Branch will be adversely affected, for during that distance below the dam numerous streams and springs augment the river, so that even if the flow is reduced at Bond Falls, there still will be an appreciable stream left to continue on its ancient course. And after all, six miles of a small river in the wild country of the Upper Peninsula isn't very much to get excited over.

But, and here's the crux of the entire situation, if the Copper District Power Company wins in what promises to be a bitterly fought legal battle, then a precedent may be set that can have a tremendous influence on future engineering projects. If the law sees fit to grant a private corporation the privilege of diverting a waterway, of regulating 'scenic" attractions," it wouldn't stretch the imagination too far to vision power companies of the future engaging in a sort of wholesale face lifting orgy of Nature.

And such a statement is not far-fetched. Picture a similar situation a year from now in another part of the country. Only this time diversion of the stream will mean stopping forever the flow of water down many miles of its old course and utter destruction of such scenic values that are

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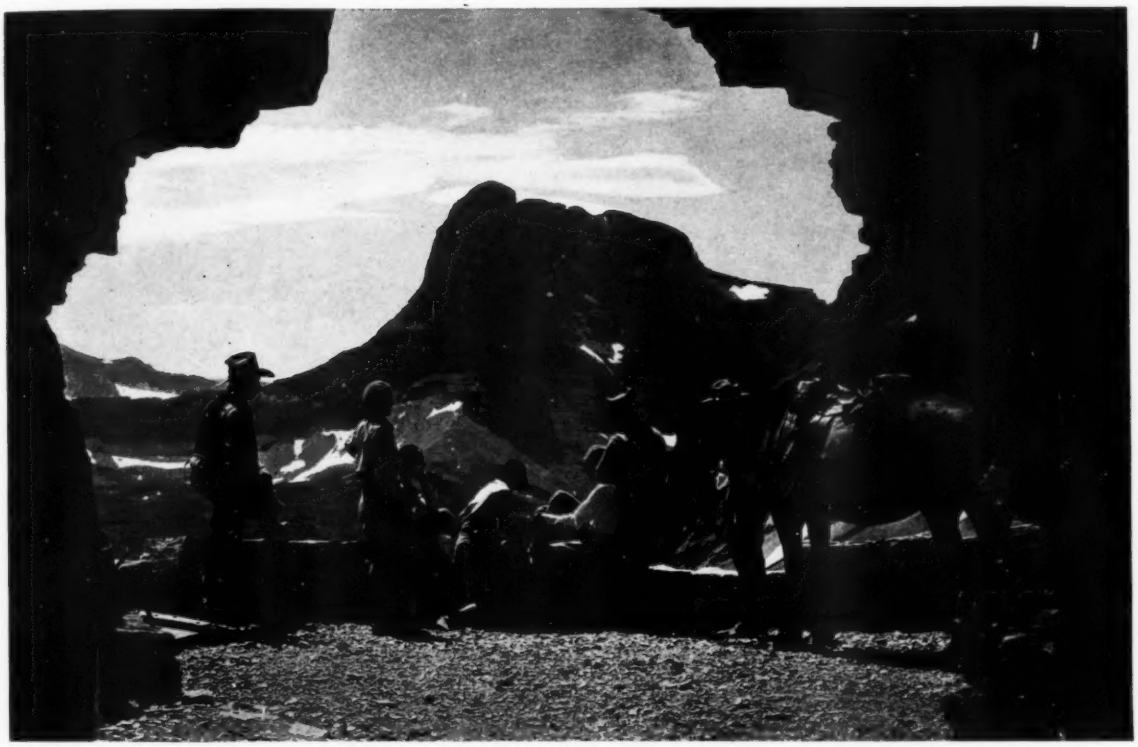

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present. The power interests will have a handy and effective argument when they point out that the Middle Branch of the Ontonagon River in Upper Michigan was practically handed to a private corporation.

To vindicate their methods of obtaining hydro-electric power, public utilities magnates offer the time-honored reasons of more jobs and cheaper electricity. More jobs there probably will be, but they will only be temporary, coincident with the construction of new dams. As for cheaper electricity, today the federal government alone is producing so much in certain sections that private and public utility people are worried over the competition.

When the time comes for the lawmakers of Michigan to settle the question of "Whose river is it?" it might be well for them to consider that the general public should have prior right. Let the rivers and streams of the nation be used for power-producing purposes when advisable and necessary, but don't make presents of them to minority interests.

After all, Nature probably knows a bit more about where a river should be than man. She's been at the job for some time.

Lichens—Pioneers

(*Continued from page* 265)

plants or of men, is by comparison. Photographs in the rogues' gallery and former descriptions of hunted men assist police in their identification of criminals, but in the course of time, faces and bodies may alter, teeth decay and be removed, eyes change their color, so that the only recognizable clue to identity is the record of thumb lines and finger prints.

The spore characters of lichens may be considered as allegorical finger prints.

If a botanist is given a lichen specimen that has been broken into fragments, and handled inconsiderately by the collector, he is in much the same position as the police inspector who is confronted with the problem of identifying the body of a man who has been murdered and mutilated. In either case, a picture of the subject, even when supplemented by a good descriptive legend, offers little assistance. The police may not be able to identify the mutilated body, but the botanist can usually find a helpful spore character in his lichen specimen.

Even as the police make use of their knowledge of the associations of criminals in their investigations, the botanist employs his knowledge of the algal associations of lichens in determining identities. *Graphis Scripta* associates with the alga, *Chroolepus umbrinia*, and many others are known to have a definite predilection or predestination for certain algal associates.

If it is possible for the observer of these tiny plants to supplement macroscopic study with microscopic examination a whole new world of visual delights will be opened to him and, incidentally, he will acquire a greater appreciation of the characteristics of Nature's most indispensable pioneers.

WHO'S WHO
Among the Authors in This Issue

CHARLES NEWTON ELLIOTT (*The Chattahoochee National Forest*) is director of the Division of State Parks at Atlanta, Georgia. The author of frequent articles in the past, Mr. Elliott is well known to the readers of AMERICAN FORESTS.

Axel H. Oxholm

AXEL H. OXHOLM (*The "Liquid" Gold Rush of the Pacific Northwest*), managing director of the Pacific Forest Industries, was born and educated in Norway. Through years of travel and study of forestry and wood-using practices in this country and abroad, he has introduced many practical ideas of timber utilization.

MORA M. BROWN (*Let's Go Fishing*), married to a reclamation engineer, knows what it is to overcome a desert with irrigation. Growing up in Idaho, it was there that she learned to love forests and wildlife, except bears, which she has never encountered outside of her imagination.

CLELAND VAN DRESSER (*Whose River Is It?*) is a free-lance writer. Beginning newspaper work in Los Angeles, he has since come to Washington. A good proportion of his writing is on some phase of conservation.

FREDERICK L. BROWNE (*Painting Your House*) is senior chemist at the Forest Products Laboratory, Madison, Wisconsin. After some conflict of choice between his father's profession of architecture and chemistry, he chose the latter, but circumstances seem to have drawn him back to problems connected with housing.

H. J. DODD (*Lichens — Nature's Pioneers*) is administrator in Dutch elm disease eradication for the Bureau of Entomology and Plant Quarantine at Bloomfield, New Jersey. His hobby, when he can find the time, is to write natural science articles.

G. H. COLLINGWOOD (*Beech—Tree Series*) is forester for The American Forestry Association.

A. ROBERT THOMPSON (*Your Shade Trees*) is in charge of shade tree work with the branch of forestry of the National Park Service.

COVER—"Morning in the May Woods." Photograph by Frank Wallace, Indiana Department of Conservation.

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